

Biographic Clinics

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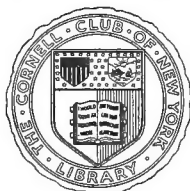
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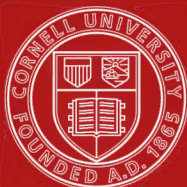
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BIOGRAPHIC CLINICS

GOULD

BIOGRAPHIC CLINICS

VOLUME VI

ESSAYS CONCERNING THE INFLUENCE OF VISUAL
FUNCTION, PATHOLOGIC AND PHYSIOLOGIC,
UPON THE HEALTH OF PATIENTS

BY

GEORGE M. GOULD, M. D.

Formerly Editor of AMERICAN MEDICINE, Author of Various Medical
Dictionaries, "Borderland Studies," "The Meaning and the
Method of Life," "Righthandedness," etc."

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PREFACE.

I thank the editors and proprietors of the following periodicals for permission to republish the articles herewith reproduced: *Interstate Medical Journal*, *Medical Standard*, *American Medicine*, *Buffalo Medical Journal*, *St. Louis Medical Journal*, *Southern Clinic*, *Lancet-Clinic*, *Medical Record*, *Johns Hopkins Hospital Bulletin*, *New York State Journal of Medicine*.

GEO. M. GOULD.

THE SENTINELS, CAYUGA HEIGHTS,
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VALEDICTION.

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CHAPTER I.

VALEDICTION.

In a recent number of "the leading ophthalmological journal of the United States" the "acknowledged leader" of ophthalmic specialism writes:

"The optician can arrive at such prescriptions [for spectacles, such as the oculist orders] if he has to deal with a patient whose eyes and brain are free from organic defects. The eye, however, has many diseases which are difficult to find out and appreciate. I should advise the optician to consult the oculist when he, by glasses, fails to get the full acuteness of vision. . . . The best field for the optician is the uncomplicated astigmatia. . . . Astigmatia is present in every eye, and the correction can be recognized without trouble and mistake."

In the same journal this editor and his subeditor, in another way, join their forces to stigmatize astigmatism. An oculist had contributed to a rival journal an article reporting the evil effects of miscorrected astigmatism, of which it is said:

"Similar emanations from the same source are becoming too frequent for the good of American ophthalmological literature."

Hundreds of such excerpts might be added—the medical journals are replete with them—all illustrating:

1. That, for the purpose of correcting ametropia and relieving eyestrain, the optician, instead of the physician, may be consulted, and that, only in the presence of organic, inflammatory, or surgical disease, is it necessary to consult the physician.

2. That the object of spectacles is simply and solely to give the patient the greatest acuteness of vision.

3. That a cycloplegic is unnecessary for the accurate diagnosis of "astigmia" or of any kind of ametropia.

4. That eyestrain produces no systemic diseases whatever,—does not cause headache, nor any sort of gastric, assimilative, nervous, or other disorders.

5. That a medical journal has no duties to the medical world, to contributors, to science, or to suffering patients if the views of those offering contributions differ from those of the editors. The editors must reject articles not harmonizing with their own opinions, and they should be discourteous toward the writers of such articles.

Now each and all of these and a multitude of implied and necessarily resultant things are the reverse of the truth, and are known to be false by thousands of reputable physicians and cured patients. The greatest acuteness of vision obtainable by spectacles constantly ruins eyes and lives; a cycloplegic is usually necessary to diagnose the error of refraction; eyestrain is the great source of reflex systemic disease, and the optician, unless authorized to use cycloplegics, cannot correctly measure the eyeballs. Editors of medical journals have no moral or scientific right to treat disagreeing contributors as they do.

Hence, too, the authorized and commanded legalization of "optometry" accomplished in New York State by the Legislature and Governor, and, probably, the coming license in the other States of the Union.

In the *Journal of the American Medical Association*, February 13, 1909,¹ another editor (with assenting trustees and profession) prints a communication which the editors of "proprietary" medical journals, for apparent reasons, had refused. These great leaders—editor and contributor—were of the same mind as the first two, adding, to crown the ridicule, that not only does eye-strain not produce reflex or systemic disease, but that such reflexes do not exist; that not only is a mydriatic unnecessary for the diagnosis of ametropia, but that, in truth, the oculist and optician are likewise unnecessary, —a machine is all that is required! But one step further could be made, that, namely, no patient is needed! A hundred text-books and learned contributions by the neurologists have in fact taken this position that the whole trouble is uncaused "neurasthenia" or "hysteria." And to this a hearty *Amen* is cried by the tribes of Mrs. Mary Baker Glover Patterson Eddy, seconded by Dr. Worcester. Thus to the fashionable therapeutic nihilism of fashionable medicine is added the diagnostic nihilism necessary to complete the new Temple of Hippocratic Faith.

Over against all this, and a multitude of other citations

¹Another illustration may be found in the *Pennsylvania Medical Journal*, November, 1908.

which might be made, set the following:¹ In Mr. Snell's presidential address before the British Medical Association (*British Medical Journal*, August 1, 1908)—the official organ which has so long and ably sneered at reflex ocular neuroses and refused the contributions of less powerful physicians concerning them, occurs this paragraph:

The knowledge of errors of refraction and their causal relation to many nervous conditions may be set forth as a notable advance. And yet it is but a few years since the scoffer was heard deriding such a relation or minimizing its importance. Is it a small matter that, to millions of sufferers from recurring headaches, a fuller and better understanding of the bearing of ocular conditions as a cause, and a more careful adjustment of their refraction errors or muscle balance, in competent hands, has brought comfort and relief?"

The professor of medicine in the University of Pennsylvania, also speaking officially before the greatest medical organization in our country, says:

"The subject is familiar to all! Who has not seen correction of errors of refraction relieve so-called 'bilious attacks,' periodical vomiting, anorexia, indigestion, and other gastric symptoms? The cure of grave organic ocular defects relieves similar gastric conditions."

In the latest and most authoritative "System of Medicine," edited by the most accredited leader in

¹For evident reasons I omit excerpts from a thousand personal letters from physicians and patients, because it is only public attestation that can overthrow error and establish truth. The open confession of faith alone "saves the individual soul," and, too, that only wins new converts.

so-called therapeutic nihilism, the best of diagnosticians and gastrologists is allowed to write:

"Commonly, indeed almost invariably, the etiology of the trouble will be found in some remote and perhaps unexpected region of the organism, to some leak of general energy, if the expression is permissible, to some undiscovered irritation of the nervous system. Thus a retroverted uterus, proctitis, or a displaced kidney may indirectly lead to the important digestive disturbances, but more frequently causes of gastric asthenia are to be found in eyestrain. This subject has been so widely discussed in America, and from so many points of view, that it is somewhat threadbare; yet its signal importance remains largely disregarded.

"Irregular or asymmetrical astigmatism is the visual defect most often responsible for the functional disturbance, but it is not always in astigmatism of high degree that the trouble arises. It is more commonly found in instances of moderate degree of astigmatism with axes differing in the two eyes, and especially in anisometropia. Although not limited to that period of life, the nervous disturbances following these visual defects are apt to appear after the age of maturity, and are especially active when the crystalline lens begins from age to lose its pliability. We are indebted to Gould for insisting upon the reality of the matter."

Two Boston physicians recently report some 1,700 cases of "migraine" cured by relief of eyestrain. It was only two or three years ago that the editor of the "System of Medicine" above alluded to, said that the nature of this incurable disease was unknown. For twenty or more years I have urged that the disease is caused by eyestrain. From a painstaking clinical and statistical study of 100 cases of migraine Dr. A. R. Baker (*Oph-*

thalmic Record, January, 1907) summarizes his work and opinion as follows:

“That there are other causes of migraine than eyestrain no one can doubt, but that they are exceptional I firmly believe, and in conclusion can only urge that we oculists reiterate the fact that the most frequent and usual cause of migraine is eyestrain until the general practitioner comes to recognize the truth of our position.”

But the influence of eyestrain is not limited to ophthalmology, neurology, psychopathy, gastrology, and internal medicine. It has just as much to do with gynecology, orthopedics, and general surgery. I might quote extensively from the writings of the distinguished surgeon, Dr. Robert Morris, of New York City, but (by permission) I excerpt the following epitome of his views from a private letter to me:

“A great many patients are sent to me with obscure gastric or intestinal complications, for the purpose of determining if anything surgical can be found. The proportion of such cases that depend upon eyestrain is a matter of perennial interest. I usually say to the patient, ‘There are evidences of eyestrain in the case. Let us get either positive or negative testimony on that point before taking up other features *seriatim*.’ Sometimes where I have been quite positive that eyestrain existed, none is found. In other cases this factor is the dominant feature of the case. When I look back over the list of patients with nervous dyspepsia, various neuralgias, and uterine flexions, in my own practice, that have escaped operation, and have been made well by ophthalmologists, I often wonder how many thousand patients must be annually subjected to wrong or harmful treatment, over the entire world, by men who have not made themselves familiar with the subject

of eyestrain. When physicians ask me what to do about selecting ophthalmologists who are competent to find eyestrain, I answer that they are to find those who have cured migraine. That can fairly stand as an index of their competence."

When a great surgeon refuses thousands of dollars a year by referring patients to others who cure their supposed surgical diseases by means of glasses, something is certainly wrong with fashionable surgery.

For many years I have been reporting cases of epilepsy cured by relief from eyestrain. In the present volume is another report, which is so remarkable that it should merit the attention of the profession. The truth is vouched for by a most trustworthy and reputable general physician, Dr. Aaron, of Detroit. Besides the many similar cases reported by others, Dr. Reik, of Baltimore, chronicles cure in six cases,¹ justly criticising the position taken by a famous skeptic on the subject.

It may also be remembered that I have long urged that suicide is frequently due to eyestrain. Striking proofs of the fact in my practice have been added recently. Although from the nonclinical side, a most remarkable consent to the truth comes from so unexpected a source as the conservative *The Law Times* of London, England, which, March 14 and April 4, 1908, devotes two lengthy and detailed leaders to the fact and emphasizes the truth of my contention. America's greatest vital statistician, Mr. Frederick Hoffman (*The Spectator*, October, 1908), also bears witness as follows:

¹*Journal Am. Med. Assoc.*, May, 4, 1907.

A distinct addition to our knowledge and better understanding of the suicide problem has been made by Dr. George M. Gould, who connects many cases of suicide with visual defects, resulting first in eyestrain, and second in serious pathological lesions of the brain. Gould, in an article on the mysteries and sources of suicide, published in *The Medical Record* in 1906, emphasizes the rôle of venereal diseases in suicide, and he also draws attention to spinal curvature as an evidence of morbid conditions resulting from back-strain, caused by visual defects, not at all difficult of determination. Gould examined a large number of alleged causes of suicide which, upon further consideration, in the light of his own experience, could be reduced to the single factor of eyestrain as the probable cause of mental depression, chronic headaches, nervous collapse, insomnia, etc. In the opinion of Dr. Pronger, an English authority, eyestrain patients quite frequently have confessed to having been on the verge of suicide, and, in his opinion, "errors of refraction are responsible for a large proportion of the suicides occurring daily."

The researches of Gould and others are of great practical value, as an aid in the effort toward a better understanding of the underlying causes and conditions, both mental and physical, which promote an act which in itself is contrary to human reason and the instinct of self-preservation. Suicide occurs with increasing frequency among the well-to-do, and even among the rich, who, from a worldly point of view, have all the means at their command to make life worth living, yet, in the midst of wealth and power, for apparently inscrutable reasons, terminate their own existence, often while still in the prime of life.

The causal nexus between eyestrain and crime has been frequently shown by me during these twenty years. In a clinical study Dr. Geo. M. Case¹ bears testimony to the truth. Again, *The London Law Times* (January 25,

¹American Academy of Ophthalmology and Otolaryngology, September, 1906.

1908) editorializes this subject with approbation. Dr. J. G. Parsons, of Sioux Falls, S. D., before his State Board of Charities (*Sioux Falls Daily Press*, April 25, 1909), says:

“Defective vision has an important bearing on that moral blindness which fills our penitentiaries. The child who does not see well cannot study and becomes a truant from school. He gets into mischief in idleness, and drifts into crime.”

As regards the question of the influence of eyestrain upon the entire extraocular system I might quote hundreds of pages from careful clinicians. I limit myself to these:

In the *Medical Science Series* of the *George Washington University Publications*, *University Bulletin*, January, 1908, Dr. D. Kerfoot Shute says:

No ophthalmologist has ever claimed the indiscriminate influence of eyestrain over other portions of the body that the older pediatricists claimed for dentition over all the ills of childhood. Not even that much misrepresented and misunderstood, though level-headed and distinguished ophthalmologist, Dr. George M. Gould, has made a tithe of the claims for eyestrain that the older writers on the diseases of children made for dentition, and which the medical public so gullibly accepted, while now they so irrationally reject so large a part of the extremely valuable teachings of Dr. Gould. I am profoundly convinced, from fifteen years' practice in ophthalmology, that if the general practitioners would give heed to the invaluable teachings of Dr. Gould, untold suffering would be banished from thousands and thousands of people. The writer is convinced that the reflex ocular neuroses are much more extensive and important than the general practitioner is aware of and

he has therefore thought that it might prove interesting as well as instructive to present the subject to this distinguished body in a brief and conservative manner. All physicians are aware of the fact that eyestrain will produce severe headache for instance, but many are not aware of the fact that there are many other serious results that follow eyestrain, such as insomnia, petit chorea in children, vertigo, stomach derangements, impaired general nutrition, etc.

Slight errors of refraction, frequently dating from birth, often have a gradual injurious influence upon the nervous system, similar to the dropping of water upon a stone. The incessant impacts of reflex irritations upon the nerve-centers from any organ—eye, ear, ovary, tooth, or what not—often lead to the over-leaping or shunting of these irritations to neighboring or more remote nerve-centers; and we thus have a perfectly rational anatomical and physiological basis for many otherwise obscure reflex neuroses. When these reflex irritations are constantly occurring in persons of sensitive, highly-strung temperament, the wonder is, not that reflex neuroses occur, but that they are not more frequent. As a matter of fact, these reflex neuroses are much more common than is generally supposed.

Dr. Gould has written most instructively and entertainingly upon the optic and ocular factors in the etiology of the scoliosis of school children. He has shown conclusively that astigmatic children with unsymmetric oblique axes (especially in the dominant eye) develop a compensatory curvature of the spine on account of the habitual lateral inclination of the head. This physiological scoliosis may readily degenerate into a pathological and organic spinal curvature. It seems to the present writer overwhelmingly reasonable that orthopedic surgeons in these cases should be careful to eliminate the factor of eyestrain.

All that the conservative ophthalmologist advises is that when you have to deal with obscure nervous affections, with epileptiform convulsions, various choreic movements, "habit chorea," vertigo, nausea and vomiting, pain over the mastoid region (pseudomastoid

disease at times), pain in the right inguinal region (possibly pseudo-appendicitis), obscure pains over the heart, torticollis and spinal curvature, migraine, hysteria, neurasthenia, apparently stupid children, incorrigible children and adults, insomnia, great irritability, extreme depression, impaired memory, difficulty of concentration of thought, apprehension, lack of self-confidence, exhaustion and weariness, and the like, as well as headache, it may well be worth your while to eliminate the factor of eyestrain. No harm can possibly be done, and on the other hand every good may be accomplished. As Gould has so ably and brilliantly insisted, eyestrain is a factor of tremendous importance in modern civilization. It will well repay you as general practitioners to read his delightful Biographic Clinics. In my judgment, and from my experience, they teach vastly more that is true than is erroneous.

Because his testimony is of such exceptional value on account of his official position, his benevolence, and intelligence, that of Dr. Gulick, of New York City, should be emphasized here. The profession, generally speaking, have left in silence the demonstrations of the effects of eyestrain upon the lives and literature of many great writers of the past. Dr. Gulick (*The Efficient Life*) writes:

"This eyestrain in a large number of cases creates an extraordinary and altogether not to be expected general condition of the body. Dr. George M. Gould has in five volumes called attention to these general effects of eyestrain with such force as to secure the assent of most thoughtful medical men, by showing that the serious disturbances of life in such men as Carlyle, Huxley, Wagner, and a score of others were occasioned by strained eyes. It frequently happens that persons suffering not only from headaches, but also backaches, sometimes indigestion, and even hys-

teria, are cured of these troubles through the use, simply, of spectacles. Professor Schoen, of Leipsic, reports the case of a girl with epileptic seizures which were due to eyestrain."

In many pages Dr. Gulick gives additional evidence, and explains the methods and reasons of such phenomena. It is to be remembered that Dr. Gulick and a number of others speak from the never-to-be-sufficiently-emphasized necessity, as I have persistently urged, of beginning with the child. The most perfect cure is prevention—"Back to the Child!"

Now, that by the will of the majority of "the rank and file" the "ophthalmic surgeons" have succeeded in convincing legislators that opticians may replace physicians in treating eyestrain, it becomes noteworthy that the opticians in their practice and literature are proving that eyestrain plays a great rôle in the production of systemic disease. Many physicians are bearing public and private testimony to this fact. One most conscientious optician, Mr. L. Burket, of Baton Rouge, Louisiana, filled with the love of humanity and truth, is successful in curing by glasses those cases of systemic diseases which, as so many of us have contended, are due to morbid visual function.

As regards lateral spinal curvature, its appalling frequency has been as amazingly neglected as the discovery of its cause and the rational methods of its prevention and cure. I have succeeded in demonstrating its existence in 803 out of 937 Freshmen entering a great university, 134, only, having erect spinal columns.

About 80 percent of our young educated people, therefore, reach adult life handicapped by this disease-producing deformity. This fact is of more importance to the world than all of the past year's teaching and lectures in medical colleges, and also that of the new text-books; yet professors and writers give scarcely one minute's attention to the subject. What a commentary upon Modern Medicine, and Medical Education! Orthopedics assert that there are no causes, no symptoms, no cure, and no prevention for this disease from which 50 or 60 millions of Americans are suffering!

Since the publication of the Biographic Clinic upon Wagner, the sixth volume of Dr. Ellis' monumental *Life* has appeared. This learned author, a physician as well as a musician and literateur, devotes part of a chapter to Wagner's eyestrain, in which all that I have contended for is abundantly demonstrated and illustrated. Since the appearance of this sixth volume, the letters to Mathilde Wesendonck, and those to Wagner's first wife, have been translated and edited by Dr. Ellis. In 1860, Wagner, in a letter to Mathilde Wesendonck, says of his vision that "as sense for observing the world it does not suffice me," and Dr. Ellis rightly concludes that this passage alone bears out the contention that much of Wagner's illness, etc., was due to eyestrain. Ellis adds: "One of the most eminent ophthalmologists of London has lately informed me that he tested Wagner's eyes in 1877 and found the patient to have long been suffering from astigmatism." In 1859, Wagner writes: "After

work I generally lie down awhile, to shut my eyes for a quarter of an hour. Yesterday I wouldn't give way, but tried to write to you instead. It avenged itself, however: a regular faintness came over me; I was obliged to stop." In 1860, Wagner's severer labor brought on what was termed typhoid fever, a misnomer, as his illness was simply the common result of severe eyestrain. "For several days I was almost totally blind; now I'm uncommonly weak, amazingly emaciated, with eyes deep-sunk. You know that I am never wholly free from pain, etc." "An inflammation of the eyes through another chill," says Minna. In 1861, Wagner writes: "My visual functions are growing ever duller; nothing rivets my gaze. . . . My eyes are good for nothing but distinguishing day from night, light from gloom." That this was not cataract is evident, as Wagner lived and worked 22 years longer, as he was only 48 at this time. It was, of course, the amblyopia consequent upon his failure of accommodation to overcome any longer his ametropia. In the Wesendonck letters there are about 30 references to the baneful influence of the weather upon his health, many others to the benefits of walking, several showing that "catarrhal fever," "rheumatism," were consequent upon use of the eyes. How unconscious of their real significance were his words written in 1860: "Maladies far oftener have their root in little than in deep complaints." The letters to Minna are filled with similar facts.

For purposes of references, should they be desired, I

cite a few among the possible hundreds of articles sent me wherein reputable medical men have risen above medical politics, dogmatisms, and personal ambitions, and, in varying degrees, confessed the new-old, old-new truth:

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A PERSONAL WORD MAY BE PERMITTED?

This forelying sixth volume of BIOGRAPHIC CLINICS will be the last I shall write. To "the gospel" I have given all the strength and money I could spare, and of both the expenditure has been great. That is nothing, however, compared to the burden of hatred and persecution which has been heaped upon me by my medical colleagues. The weight would, indeed, have been unendurable had it not been that all the malevolence could not make me regret the absence of what I did not want—office, power, fame, or money. Because I could cure thousands of the patients of my colleagues, I have succeeded in living—a feat which has not always been possible to those who have urged unwelcome truth upon medical and other "scientists." The love and gratitude of one patient overvalues the avidly-sought honors of

fame and the manufactured success of medical politics. Every medical college should have a chair of Medical History. For a long time, probably, the incumbents would not tell the truth about the reception of medical discoveries. They could not always continue to do so, however. Soon the customary 30 or 40 years during which the truth can be ignored and the truth-bearer maligned will have to be reduced.

The truth of the effects of eyestrain will not die, although its earliest discoverers cursed it, and unintentionally themselves also, for their folly in speaking too early. Hundreds of physicians have borne open witness, and these and thousands of patients who have been cured will also not allow the new light to be extinguished.

All that is yet needed is the educating of ten thousand skilled refractionists filled with zeal to carry the new truth to the millions who have so long waited. Such lovers of men cannot be fitted for their work except by peculiar training and in special schools of refraction. It is useless to attempt to graft such departments upon the existing medical colleges. Their trunks are not alive, and they are not rooted either in genuine science, in life, or in love. It is also useless to try to secure money or endowments from the fashionable capitalists,—all such, rest assured, are held in tight leash by the fashionable doctors. But, because the sufferings of millions of wretched ones, incurable by other means, may be prevented or alleviated, the money and the zeal will be found to train men for this divine work.

THE CASE OF JONATHAN SWIFT.

CHAPTER II.

THE CASE OF JONATHAN SWIFT.¹

"HEREDITY."—To eyes with "Twenty-fifteen" acuteness—those without the myopia of "Science," the astigmatism of prejudice, or the amblyopia of disuse, to eyes that are the glad servants of free intellect, the medical case of Jonathan Swift is, of all, the most pathetic, even the most tragic. A good-sized book has been written upon it, and by a good head, ending in the confession of a greater mystery than that with which it began. And learned monographs upon the subject have left it clouded in more impenetrable confusion than before. Because, by necessary or chosen error, the authors recommitted the ancient blunder of careless study of the unknown disease of the unknown patient, mistakenly assuming the diagnosis to be a disease that never existed, either in this or in any patient. For science does not always beget sense, and erudition by no means brings wisdom. Almost the only striking instance of the olden philosophy of Swift's disease that looks most modern is that which traces it to the mysterious unknown god, heredity. It was indeed due to the modern-looking mind of Mr. Deane Swift.²

¹*Interstate Medical Journal*, vol. xv, Nos. 11-12, 1908.

²A relative of Dean Swift.

"As one enterprise after another failed, the store of money dwindled; his nerves were shattered; ultimately, what may, to some extent, have been a family scourge of insanity, fell on him, and his mind gave way. His death soon followed, in 1688." (Of Godwin Swift, his uncle.) (Craik).

"The Dean's father in particular," says the note, "was swung against the wall, and the violence of the blow laid him for dead upon the floor. He was then two years old; he was all his life subject to a giddiness, and so in like manner, were the Dean and his sister. It was supposed the disorder was owing to this accident. This new origin for the Dean's malady is probably due only to Mr. Deane Swift's fertile imagination." (Craik).

The latest erudite monograph on Ménière's disease would probably talk just that way about giddiness and heredity. We may be thankful that Ménière invented his disease so long as 116 years after Swift's death, and be correspondingly sorry that it could not have been as much later.

YOUTH AND EARLY MANHOOD.—Concerning one who lived so long ago there is of Swift a remarkable fullness of information because the intensity of the interest of contemporaries and of aftercomers has well preserved the records of correspondence, anecdote, etc., both of Swift and of his friends. And as the ancient childishness of medical science had not yet given way to modern dogmatism, craze of theory, and modernity, the facts were naively left undistorted.

Swift stoutly stuck to it that during his college days he had not been idle but simply "dull," that he was "stopped of his degree for dullness and insufficiency."

He even spoke of himself as a "dunce." Swift dull? Even in boyhood? His birth-cry must have been a clear-cut protest of wit or of satire! That of Swift must be the history of many boys who really have been the reverse of dull, but whose inability to study was not understood by themselves, their teachers, or friends. We come upon the startling reason when we read that the well-known excess and fury of physical exercise which has dominated the lives of so many other sufferers afflicted with Swift's disease, broke forth so early as 19,¹—and because of eye-work:

"He was reading at this period about sixteen hours a day. In the midst of this reading, he took that regular and violent exercise which almost to the end of his life he found to be an absolute necessity; exercise of that fierce and excited kind which rather served as an escape from too violent emotions than as an aid to his physical health. At Moor Park, as, curiously enough, at many another spot where Swift lived, tradition names a small hill close to the house, up and down which Swift is said to have run, when the strain of mental excitement made a break of a few minutes necessary." (19.)

"The youth had not completed a year's residence, when, as he says himself, he returned to Ireland by advice of physicians who weakly imagined that his native air might be of some use to recover his health." (23.)

And even the psychologist of that time could be as maladroit as any of to-day:

¹The age of Swift at the time indicated is placed at the end of the quotations to follow, from his biographies or from his own correspondence, etc.

"And this is which a person of great honor in Ireland (who was pleased to stoop so low as to look into my mind) used to tell me, that my mind was like a conjured spirit, that would do mischief if I would not give it employment." (23.)

How it was with him for the next seventeen years, we may only surmise from the following sentences:

"He once had a narrow escape from burning himself and the household, by reading in bed, and letting the candle set the bed-clothes on fire, an accident which he had to keep from the knowledge of his hosts by disbursing some guineas of hush money." (32.)

"The same characteristic, which it is difficult to disconnect from the forebodings of mental disease that cast a shadow on his life, now led him to stir to exasperation, and yet all unconsciously, the religious sentiments of those whose church he desired to defend." (36.)

"The bitter humor, the self-torture, the cynicism from whose ravages he was himself the chief sufferer, had not as yet been stirred to their depths." (37.)

"The illness that was to torture him through life had not yet suggested to him its full strength and pertinacity." (37.)

SICK HEADACHE, OR "MIGRAINE," RETURNS IN OMINOUS EARNESTNESS WITH PRESBYOPIA.—This second outbreak reminds the observant patient of the first violent warning given him at the age of 29, about eleven years previously.

"I have been confined near two months this winter and forbid pen and ink by my physician; though I thank God, I was more frightened, as it happened, than hurt. I had a colick about the year 1696, that brought me to extremity, and all despaired of my life,

and the news-letter reported me dead. It began at the same time of the year and the same way it did then, and the winters were much alike; and I verily believe had I not had the assistance of my old physician, Sir Patrick Dun, I should have run the same course which I could not have supported. But with a little physic and the Spa and Bath waters, I escaped without other hardships than keeping at home; and so much for private affairs." (40.)

"Ever since persecuted with a cruel distemper of giddiness in my head, that would not suffer me to write or think of anything and of which I am now slowly recovering." (40.)

"His memorandum books, during this winter of 1708-09, are filled with agonized references to these tortures. All the year, he tells us, he was in England; and in another corner of the notebook, he has jotted down the words *in suspense*."

1708. "Nov. From 6th to 16th often giddy. God help me. So to 25th, less. 16th Brandy for giddiness, 2s. Brdy 3d. Dec. 5th Horrible sick. 12th Much better, thank God and MD's prayers. 16th Bad fitt at Mrs. Barton's. 24th Better; but dread a fitt. Better still to the end." 1709. Jan. 21st an ill fitt; but not to excess. 29th Out of order. 31st Not well at times. Feb. 7th Small fitt abroad. Pretty well to the end. March. Headache frequent. April 2. Small giddy fitt and swimming in head. MD and God help me. August. Sick with giddiness much." 1710. "Jany giddy. March. Sadly for a day. 4th. Giddy from 4th. 14th Very ill. July. Terrible fitt. God knows what may be the event. Better toward the end." (Forster) (41.)

Much foolish writing of Swift's "epileptic tendency" has been allowed, because of the medical ignorance of the disease or symptoms called sick headache, but perhaps as much by reason of Swift's natural use of the term "fitt." In Swift's time the word meant simply an attack of some

severe illness, or a recurrent attack of a periodic or constitutional malady. The word aptly denoted a seizure of any severe but transitory ailment. Thus, in 1547, Surrey speaks of "shaking fits"; in 1601 Shakespeare uses the word of the paroxysm of "a feavor"; in 1667 Allsopp writes, "Taken with a fit of the collicke"; in 1691 the Bishop of London had a "fit of the stone"; and in 1725 the expression "The fits of intermittent fever," "of gout," etc., were common. Even to-day we hear of "A fit of coughing," etc. The "colick," the "bad fit," the "ill fit" of Swift was plainly what we know so well in thousands of patients, the acute outbreak of sick headache, consisting of violent vomiting, headache, etc. That Swift had but one attack or noteworthy "fit of the colick" prior to the more frequently recurring ones at the onset of presbyopia, is in accord with the daily experience of oculists now. From 1861, of the first fifty cases reported of so-called "Ménière's Disease" (sick headache only and truly) the ages of the patients average 45 years—a most suggestive fact for the awake oculist—but not for aurists and other physicians! Moreover, note that above 200 years ago the same causes produced it, the same course characterized it, the same pseudotherapeutics followed it. Reading 16 hours a day hints the story of the cause; the patient is in "tortures," "suspense," and thinks he has incipient insanity, mysterious inherited disease; he is "cured" by quitting near-work with the eyes, by violent exercise, by the "old physician" and his "physic," and by going to "the Spa and Bath waters," and—the disease

recurs, goes on from bad to worse, and finally to worst!¹ And the two hundred years of this sad, solemn ignominious history are likely to go on for two hundred more before the farce is ended. Even to-day while a few good oculists report thousands of cases cured by scientific refraction of the eyes, the most report that the disease is not caused by eyestrain.

Craik, I am convinced, is in error when he says that Swift, in 1690, aged 22, was "already suffering from his life-long enemies, giddiness and deafness, which were to continue with such persistency, etc." I can find no warrant for the statement as regards deafness, and the histories of many similar cases in my practice make the appearance of this symptom at this age highly improbable. The writer's pen ran away with him, a bit of proof of which is given in the same sentence, "and the advice of physicians gave him an excuse for returning to Ireland to recruit his health." The first time Swift uses the word "deafness" is at the age of 52. Giddiness he may have had at any time of life, and at 44 he says he had had this symptom "twenty-three years by fits." The involution of his symptoms as presbyopia advances² is illustrated in the more vague terms, more frequently noted:

¹ "Of what use," say my critics, "to retell these old indefinite histories of long dead men?" Of not any use to the critics. Such clinics are not indefinite. It is true these patients are dead, but those of the critics are not dead—at least most of them, and they have the identical diseases of the older and more recent dead ones.

² Noteworthy is also the long extension of presbyopic symptoms in Swift's case into his very last years, from 70 to his death, caused by contempt of spectacles, and abuse of his eyes.

"I have had no fit since my first, although sometimes my head is not quite in good order." (43.)

"During April he was further troubled by a tedious and painful illness which he calls the shingles." (44.)

"My head is still in no good order." (44.)

"Pray God mend poor Ppt's health; mine is but very indifferent. I have left Spa water; it makes my leg swell." (44.)

"A fortnight in Dublin very sick." (45.)

"I don't sleep well, and therefore never dare to drink coffee or tea after dinner; but I am very sleepy in a morning." (45.)

"I heard from Mr. Lewis that your head is so much out of order." (45.) (Miss VanHomrigh to S.)

"But my health has not yet suffered me." (45.)

"My health requires it." (45.)

"I was in very ill health and am since but slowly recovering." (52.)

"My few hours of health and leisure." (52.)

"Considering my state of health." (53.)

"My health will not suffer it." (53.)

"A sickly man." (53.)

"Remember that riches are nine parts in ten of all that is good in life, and health is the tenth." (54.)

"Out of Health and Humer." (54.)

"I am so much out of order that I could not go to Church." (55.)

By those who excel in the exaggeration of negations I have been persistently charged with all sorts of positive "exaggerations," but especially with the exaggeration of the effects of eyestrain and disease upon the personal character, disposition, habits,—the intellectual and moral caste of the patient. Here is how Swift's discriminating biographer feels about the matter:

"There is little in the portrait, as there was little probably that attracted the attention of Swift's ordinary acquaintance, to tell of the ravages of disease. Those ravages were already present, but as yet they were only intermittent. Outwardly indeed, Swift's health was good. He had a powerful and muscular physique. The stories of his walks, of his constant, violent exercise, of his coolness and intrepidity when threatened with personal violence, prove that his estimate of his own strength was not mistaken, though, by a fatal error, it drove him to a regimen that encouraged the disease. In all his ailments, his only idea of a cure seems to have been to drive out some superabundant energy by forcing himself to overstrained physical exercise. He lived hard, in the sense that he drew largely on his strength, and seemed ever to be striving to tame his energies rather than to conserve and regulate them into useful servants. But as yet the dire effects of such self-torture were not visible; and Swift was, as his portrait shows him, a man in the prime of life, and in the vigour of an almost superabundant strength; knowing his own powers, and yet without the bitterness of those later antipathies, which checked the free flow of the gracious kindness that endeared him to a circle such as gathered at Will's or at the St. James's Coffee-House, in those earlier years." (41.)

The biographer, of course, makes the common mistake of supposing the ferocious demand for physical exercise "encouraged the disease." The biographic clinics of every severe eyestrain sufferer in the past, or in the office of to-day's oculist, demonstrate that that is the sole way the outraged nervous system has of stopping the insult, and also of disposing of the excess of irritation,—of normalizing the nerve-centers and cerebral storage and recuperative mechanisms. It is Nature's therapeutic device avidly seized upon if the physical organism will

endure, and if the will chooses or is of the kind to command.

SWIFT'S "GIDDINESS."—Giddiness, vertigo, or dizziness, is a somewhat less common symptom of eyestrain, migraine, etc., than headache and digestional affections. At 44, Swift says he had had fits of giddiness for some 23 years. The jottings are as follows:

"I have had my giddiness twenty-three years by fits." (45.)

[Beginning therefore at the age of 22.]

" . . pursued with a giddy head." (52.) (Mr. Prior to S.)

" . . . the giddiness I am subject to, and which this moment I am not free from." (54.)

"Afflicted at present with a giddiness in my head." (57.)

" . . . so ill with a giddiness." (57.)

"His health, moreover, was failing, and the attacks of giddiness and deafness from which he had suffered much in late years, returned oftener and lasted longer." (58.)

"Yet my giddiness alone would not have done, if that unsociable comfortless deafness had not quite tired me." "I believe this giddiness is the disorder that will at last get the better of me; but I would rather it should not be now; and I hope and believe it will not for I am now better than yesterday. Since my dinner my giddiness is much better and my deafness is a hair's breadth not so bad. It is just as usual, worst in the morning and at evening. I will be very temperate; and in the midst of peaches, figs, nectarines and mulberries, I touch not a bit." (59.)

"So giddy and deaf." (39.)

"I would take your giddiness, your headache, or any other complaint you have to resemble you in one circumstance of life." (Mrs. Howard to S.) (59.)

"I am in a middling way, between healthy and sick, hardly ever without a little giddiness or deafness, and sometimes both." (60.)

"I had not been above a fortnight recovered from a disorder of giddiness and deafness, which hardly leaves me a month together." (60.)

"Disorders of giddiness and deafness, of which I have frequent returns." (60.)

"I am still in the same condition, or rather worse, for I walk like a drunken man and am deafer than ever you knew me. If I had any tolerable health I would go this moment to Ireland." (60.)

"The giddiness I was subject to, instead of coming seldom and violent, now constantly attends me more or less, though in a more peaceable manner, yet such as will not qualify me to live among the young and healthy." (63.)

"Nothing but an uncertain state of my health (caused by a disposition to giddiness), which although less violent is more constant." (64.)

"The ten days since, I have been much disordered with a giddiness, that I have been long subject to at certain times." (64.)

"Your complaint and mine are not very different, as I imagine. Mine is a sort of dizziness which generally goes off by the headache. Some learned people give it a name I do not know how to spell, avertico, or vertigo." (65.) (Duchess of Queensbury to S.)

"I have been pursued by two old disorders, a giddiness and deafness, which used to leave me in three or four weeks, but now have continued four months." (65.)

"My health is so uncertain that I dare not venture among you at present." (65.)

"I never ride without two servants for fear of accidents." (65.)

"My head is so disordered by returns of my old giddiness, that I cannot yet venture to take those journies." (65.)

"I have been for three months confined by giddiness and deafness." (66.)

"Constant giddiness in my head and what is more vexatious, a constant deafness." (67.)

"As I was getting on horseback to return, I was seized with so

cruel a fit of giddiness which at times hath pursued me from my youth, that I was forced to lie down on a bed in the empty house for two hours, before I was in condition to ride. However, I got here safe, but am this morning very weak, as I always have been for many days after such fits, and in pain for fear of another this day, which makes me write to you while I am able while it be morning." (67.)

" . . . grieved that you are so much persecuted with a giddiness in your head." (68.) (Mrs. Pendarves to S.)

"I grow giddier as I grow older." (about 68.)

"I have been this month so ill with a giddy head, and so very deaf, that I am not fit for human conversation." (69.)

THE TINNITUS AND DEAFNESS.—The first time that Swift mentions deafness is at the age of 52. This symptom or sequel of migraine may occur at an earlier time of life. It is most rarely complete or sudden in its oncoming, and when it is so, in connection with severe vomiting, it is in all probability the direct mechanical result of the enormous and agonizing strains of the act, sometimes by several methods of production ending in traumatism of the tympanum, the mechanisms of the middle or the inner ear. How much or how severe may have been the attacks of vomiting in this patient's "collickes," it is impossible to say. A careful reading of the following excerpts clearly brings out two overlooked but decisive conclusions: First, that Swift never became permanently or completely deaf; that he recovered his hearing perfectly, suddenly, and frequently, demonstrates that there never was any serious organic lesion of the mechanisms of hearing—that is, the deafness was at

least for the most part functional, and therefore was probably due to a reflex neurosis. As his most severe eyestrain was the most certain, severe, and continuous source of his illnesses and infirmities, the reflex neurosis started in the extreme abuse and irritation of his eyes. In the second place, when Swift uses the word "deafness," he plainly confounds it with the tinnitus which was with him more and more frequently as the years wore on, and which broke ever more tormentingly upon his attention. In a private patient, this maddening roaring and rushing as of "the noise of seven water-mills" or of a "hundred oceans rolling in the ears," to use the words of Swift, existed for 18 years, and nearly drove the man into insanity, until a pair of spectacles ended it all in a day. Swift frequently couples the words "noise and deafness" in a significant manner. Even at 70 Swift speaks of "a noise in the head which deafens me." The tinnitus was certainly the most burdensome of Swift's symptoms, and, as in private patients, was the cause and reality to which he often gave the name "deafness."

"Once in five or six weeks I am deaf for three or four days together." (52.)

"When my deafness comes on I can hear with neither ear, except it be a woman with a treble and a man with a counter-tenor." "This deafness unqualifies me for all company, except a few friends with counter-tenor voices, whom I call names if they do not speak loud enough for my ears." "I sometimes receive one or two friends and a female cousin with strong, high tenor voices." (53.)

" . . . a Condolence on my Deafness. Mr. Lebrunt was right

in my Intentions, if it had continued, but the Effect is removed with the Cause." (53.)

"I have been these five weeks and still continue so disordered with a Noise in my Ears and Deafness that I am utterly unqualified for all Conversation or thinking. I used to be free of these fits in a fortnight but now the disease, I fear is deeper rooted, and I never stir out, or suffer any to see me but Trebbles and counter-tenors, and those as seldom as possible." (53.)

"Almost three weeks pursued with a Noise in my Ears and Deafness that makes me an unsociable Creature, hating to see others, or be seen by my best Friends, and wholly confined to my Chamber—I have often been troubled with it but never so long as now, which wholly disconcerts and confounds me to a degree that I can neither think nor speak nor act as I used to do, nor mind the least business even of my own." (53.)

"I am but just recovered of my Deafness which put me all out of Temper with myself and the rest of Mankind. My Health is not worth a Rush nor consequently the Remaining Part of my life." (54.)

"So pestered with the return of a noise and deafness in my ears." (56.)

"Tormented with an old vexatious disorder of a deafness and noise in my ears, which has returned, after having left me above two years, and makes me unsupportable to others and myself." (56.)

"Cruelly persecuted with the return of my deafness, that I am fit for nothing but to moan in my chamber." (56.)

"I have been this month past so pestered with the return of a noise and deafness in my ears, that I had not the spirit to perform the common offices of life, much less to write to your excellency." (56.)

"I am now relapsed into my old Disease of Deafness, which so confounds my Head, that I am ill qualified for writing or thinking." (36.)

"I have the noise of seven Watermills in my Ears and expect to continue so above a month, but this sudden Return has quite discouraged me. I mope at home and can bear no Company but Trebles and counterteners." (56.)

"As far as my confused head will give me leave to think." (56.)

"So long afflicted with a deafness." (57.)

"I have been above seven weeks ill of my old Deafness and am but just recovered." (about 57.)

" . . . being not in a Condition to converse with any Body, for want of better Ears and better Health." (57.)

"His old ailments returned in great force. He had lived too well at Pope's house; and so he thought had brought back his giddiness. 'Cyder and champaign and fruit,' he wrote, 'have been the cause.' His deafness was worse than ever. 'I have,' he said, 'a hundred oceans rolling in my ears, into which no sense has been poured this fortnight.'" (58.)

"This cruel disorder of deafness, attended with giddiness, still confines me." (59.)

"I am extremely troubled at the returns of your deafness." (59.) (Mr. Pope to S.)

" . . . bawl when I am deaf, and tread softly when I am only giddy and would sleep." (about 59.)

"In such a miserable country, such a Clymat, and such roads, and such uncertainty of Health. I would never if possible be above an hour distant from home—nor be caught by a Deafness and Giddyness out of my own precincts, where I can do or not do, what I please; and see or not see whom I please." (59.)

"Ten days ago, my old deafness seized me, and hath continued ever since with great increase; so that I am now deafer than ever you knew me, and yet a little less I think than I was yesterday; but which is worse, about four days ago my giddiness seized me, and I was so very ill that yesterday I took a hearty vomit, and though I now totter, yet I think I am a thought better; but what will be the event I know not; one thing I know, that these deaf fits used to con-

tinue five or six weeks, and I am resolved if it continues or my giddiness, some days longer, I will leave this place." (59.)

"I have been now ill about a month, but the family are so kind as to speak loud enough for me to hear them; and my deafness is not so extreme as you have known." (60.)

"I continue very deaf and giddy." (60.)

"Denying myself to everybody, till I shall recover my ears." (60.)

" my old disorder of deafness being returned upon me so that I am forced to keep at home and see no company; and this disorder seldom leaves me under two months." "My Head being too much confused by my present Disorder." (61.)

"Yesterday I relapsed again, and am now so deaf that I shall not be able to dine with my Chapter on our onely festival in the year." (60.)

"A foreign language is mortal to a deaf man. I must have good ears to catch up the words of so nimble a tongued race as the French, having been a dozen years without conversing among them." (61.)

"That very condition of deafness which made you fly from us while we were together." (66.) (Pope and Bolingbroke to S.)

"My common illness is of that kind which utterly disqualifies me for all conversation; I mean my deafness." (68.)

"I feel all the infirmities of age, but less of deafness than of any other." (69.) (Lewis to S.)

"I am plagued this month with a noise in my head which deafens me, and some touches of giddiness—my old disorders." (70.)

HEADACHE AND SICK HEADACHE.—At the age of 59, writing to a friend, Swift says:—

"About two hours before you were born I got my giddiness, by eating a hundred golden pippins at a time at Richmond; and when you were four years and a quarter old, bating two days, having made a fine seat about twenty miles further in Surry, where I

used to read and—, there I got my deafness; and these two friends have visited me, one or other, every year since, and being old acquaintances, have now thought fit to come together. So much for the calamities wherein I have the honour to resemble you; and you see your sufferings are but children in comparison of mine; and yet to shew my philosophy, I have been as cheerful as Scarron. You boast that your disorders never make you peevish.” (59.)

This quizzical passage is of suggestive interest in showing that Swift kept the dates of his illnesses very exactly in mind, and also the general nature and order of them. He traces their origin to the stomach, or to an attendant symptom, “collicke,” with of course, the unmentionable vomiting. Were the “one hundred golden pippins” the sole cause of the acute indigestion or were they only a secondary one? It is a most common fact that patients have an amusing habit of tracing the diseases of a lifetime to some trivial accident or “fit” of some passing illness in childhood or youth. “Jumping off a box,” “a blow on the forehead,” “a fall,” “ever since the measles,” “a bad scare,” “scarlet fever broke me down,”—and a hundred similar *post hoc, propter hoc* illogicalities conceal the habitual lack of close observation as regards health on the part of most patients. With Swift’s eyes and their abuse (he scorned glasses, and had only “tallow dips” for lighting) he was fated to have colical pains,” “disordered head,” “vomiting and sweating,” “headache,” and most likely “giddiness” and “deafness” also, in a word, “migraine,” or sick headache, or, as Swift says, “sickness in my stomach.” So

persistently recurrent is the headache, giddiness, etc., that he says he has had attacks of these troubles every year since they began. A few excerpts illustrate:

“Waked with the headache.” (about 46.)

“My health (a thing of moment) is somewhat mended; but, at best, I have an ill head and an aching heart.” (52.)

“I have been this past Fortnight as miserable as a Man can possibly be with an Ague, and after vomiting, sweating and Jesuits Bark, I got out to-Day, but have been since my beginning to recover, so seized with a daily Headake, that I am but a very scurvy recovered Man.” “My head is too ill to write or think.” (53.)

“I believe no head that is good for anything is long without some disorder, at least that is the best argument I had for anything that is good in my own.” (58.)

“I am in such a condition of health, that I cannot possibly travel. Dr. Sheridan to whom I write this post will be more particular, and spare my weak disordered head.” (59.)

“I am ten times deafer than ever you were in your life; and instead of a poor pain in my face, I have a good substantial giddiness and headache.” (59.)

“I am grown leaner than you were when we parted last, and am never wholly free from giddiness and weakness, and sickness in my stomach,¹ otherwise I should have been among you two to three

¹As usual, one finds that the friends of most of the patients whose biographic clinics are studied, especially if literary, have precisely the same complaints and symptoms. For instance:

“Mr. Pope has his usual complaints of headache and indigestion, I think, more than formerly.” (Dr. Arbuthnot to S.)

“My ailments are such, that I really believe a sea-sickness (considering the oppression of colical pains, and the great weakness of my breast) would kill me.” (Pope to S.)

“My ill stomach, and a giddiness I was subject to, forced me, in some of those fits, to take a spoonful of usquebaugh.” (Miss Richardson to S.)

“Better, as to headaches; worse as to weakness and nerves. The changes of weather affect me much; otherwise, I want not spirits, except

years ago, but now I despair of that happiness. I ride a dozen miles as often as I can, and always walk in the streets except in the night, which my head will not suffer me to do." (66.)

"FRENZIED PHYSICAL EXERTION."—In other studies, and in the daily practice of discriminating and observant oculists one finds that the great sufferers from severe eyestrain, especially if people of strong wills and good vitality of body, have been compelled to inordinate physical exertions, walking, traveling, riding, etc. The symptom is almost pathognomonic of eyestrain. In every biographic clinic of great literary workers, scientists, musicians, etc., in which this symptom appears, the connection is evident, the significance pointed. The inquiry should suggest to every clinician and especially to every oculist the most painstaking and skilled examination of the refraction of the eyes. In Swift's case, the frenzied physical exertion began early in life and continued until the body was worn out. It was the unconscious wisdom of the organism exaggerated by the patient's conscious and drastic will.

"He was reading at this period about sixteen hours a day. In the midst of this reading, he took that regular and violent exercise which almost to the end of his life he found to be an absolute necessity; exercise of that fierce and excited kind which rather served as an escape from too violent emotions than as an aid to his physical health. At Moor Park, as, curiously enough, at many another spot where Swift lived, tradition names a small hill close to the

when indigestions prevail. The mornings are my life; in the evenings I am not dead indeed, but sleep and am stupid enough. I love reading still better than conversation; but my eyes fail." (Pope to S.)

"My eyesight is bad, my head often in pain." (Pope to Sheridan.)

house, up and down which Swift is said to have run, when the strain of mental excitement made a break of a few minutes necessary." (19.)

"Walk however, he does whenever he can, for the sake of his head." (42.)

"Walking as much as he can for his little disorders toward giddiness (for he has no actual fits)." (42.)

"I have been at this town this fortnight for my health, and to be under a necessity of walking to and from London every day." (43.)

"The two pair of Shoes, extraordinary" which Swift bespoke were, no doubt, by way of preparation for the worst. If the plague came he would do his best to preserve his health by exercise.

"Riding kept him well in Ireland." (43.)

"I am riding here for life." (45.)

"I am riding here for life and think I am something better." (45.)

"You have not kept your promise of riding but a little every day; thirty miles I take to be a great journey." (45.) (Miss VanHomrigh to S.)

"I ride about for a little health." (45.)

"He mentions a design he had on leaving for Ireland after he had obtained the deanery, to "walk it" all the way to Chester, his man and himself, by ten miles a day. "It will do my health a great deal of good, and I shall do it in fourteen days." One special walk of his earlier years, also recorded there as if not infrequently taken, deserves a line to itself. It was from Farnham to London, a distance of thirty-eight miles." (45.)

"My head is something better, though not so well as I expected by my journey." (45.)

"I am getting an ill head in this cursed town for want of exercise." (52.)

"I row after health like a waterman, and ride after it like a post-boy, and find some little success." (53.)

"I row or ride every day in spite of the rain, in spite of a broken shin, or falling into the lakes, and several other trifling accidents." (53.)

"If you knew how I struggle for a little health; what uneasiness I am at in riding and walking, and refraining from everything agreeable to my taste." (53.)

" . . I fear shall continue till my riding days are over." (53.)

"I have not rode in all above poor 400 miles since I saw you, nor do I believe I shall ride above 200 more till I see you again." (54.)

"Yesterday I rode twenty-nine miles without being weary." (54.)

"Riding, walking and sleeping take up eighteen of the twenty-four hours." (55.)

"The Weather has been so unfavorable and continues so, that I have not been able to ride above once." (57.)

"Taking all advantages of fair weather to keep my Health by walking." (58.)

"As to what you call my exercise, I have long quitted it." (60.)

"I am returned to be a rider." (61.)

"Walk ten miles a day." (61.)

"I am sick enough to go to the Bath, but have not heard it will be good for my disorder." (62.)

"I am just going out of town, to stay no where long, but go from house to house, whether Inns or friends, for five or six weeks, mearly for exercise." (62.)

"I must ride thrice a-week, and walk three or four miles beside every day." (63.)

"A constant disposition of giddiness, which I fear my present confinement, with the want of exercise, will increase." (63.)

"Valetudinarians must live where they can command and scold, I must have horses to ride; I must go to bed and rise when I please, and live where all mortals are subservient to me. I must talk nonsense when I please, and all who are present must commend it. I must ride thrice a week, and walk three or four miles beside each day." (63.)

"I make a shift to ride about ten miles a-day." (64.)

"I who am so much later in life, can or at least could, ride five hundred miles on a trotting horse." (64.)

"Continuing ill, I write to Mrs. Howard, with my duty to the Queen, took coach to Chester, recovered in my journey." (64.)

"I found myself not well; and was resolved to take a step to Paris for my health." (64.)

"I am extremely concerned to hear the bad state of your health. I have often wished you would be more moderate in your walks; for though riding has always been allowed to be good for a giddy head, I never heard walking prescribed for a strain or any ailment in the leg, and the violent sweats you put yourself into are liable to give colds, and I doubt occasion much of your other disorder." (65.) (Ford, letter to S.)

"Fortune has pleased by one stumble on the stairs, to give me a lameness that six months have not been able perfectly to cure." (65.)

"In 1734 he wrote: 'I ride every fine day a dozen miles on a large Strand or Turnpike road.'" (66.)

"For some weeks I was very ill with my two inveterate disorders, giddiness and deafness. The latter is pretty well off, but the other makes me totter towards evenings, and much dispirits me. But I continue to ride and walk, both of which, although they be no cures, are at least amusements." (66.)

"A return of your old disorders of giddiness and deafness; but I still flatter myself that it is not as bad with you as my fears have represented it, which makes me long impatiently to hear how you really are; but I am in hopes your usual *medicina gymnastica* will carry it off." (66.) (Rev. M. Philips to S.)

"Exercise is the best medicine for your giddiness." (66.)

"Riding is your *panacea*; and Bathurst is younger than his sons by observing the same regimen." (66.) (Bolingbroke to S.)

"I often ride a dozen miles, but I come home to my own bed at night." (67.)

"My disorder is of such a nature, and so constantly threatening, that I dare not ride so far as to be a night from — and yet when the weather is fair, I seldom fail to ride ten or dozen miles." (67.)

"Health is not very good, which I endeavour to mend by frequent riding, and fancy myself to find some benefit by that exercise, although not very effectual." (67.)

"I have not an ounce of flesh about me, and cannot ride above a dozen miles a day, without being sore and bruised and spent. My head is every day more or less disordered by a giddiness." (68.)

"My age is not my disability, for I can walk six or seven miles, and ride a dozen. But I am deaf for two months together." (69.)

"I seldom walk less than four miles, sometimes six, eight, ten, or more, never beyond my own limits; or if it rains, I walk as much through the house, up and down stairs; and if it were not for the cruel deafness, I would ride through the kingdom and half through England." (69.)

"escaping from pain only by frenzied physical exertion." (74.)

"The Dean," writes Sir Walter Scott, "was fond of pranks which bordered on childish sports. It will hardly be believed that he sometimes used to chase the Grattans, and other accommodating friends, through the large apartments of the Deanery, and up and down stairs, driving them like horses, with his whip in his hand, till he had accomplished his usual quantity of exercise." (Hill's Unpublished Letters of Dean Swift.)

"The fierce exercise by which he had striven to defy his torture was now over: he could scarcely be persuaded to move from his chair, and his body, which had shrunk to skin and bone, now recovered its plumpness; the wrinkles left his face, which now, in spite of the thick snow-white hair that overhung it, had an aspect of almost child-like gentleness. Still, his state was one where controlling and guiding power was wanting, rather than one of ordinary insanity. He "never talked nonsense nor said a foolish thing." He was very "quiet and peaceful." (74.)

SUDDEN SICKNESS AND SUDDEN WELLNESS.—When a patient, for long periods or for a life, has constant “ups and downs” of health, the disease is plainly functional for the most part, and evidently depends upon some fundamental cause which is subject to variableness, now normal, now morbid. When the symptoms of such a patient are those well known by all good oculists to be produced by morbid function of the eyes, and when they are relieved completely by cessation of the morbid function, *i.e.*, “near-work,” the diagnosis makes itself: unless the professional diagnostician knows nothing about eyes, and because of venial and deadly sinning disbelieves in eyestrain. The striking and often emphasized nature of “migraine,” periodicity, with sudden illness, culminating in crisis, followed by sudden clearing up and perfect health, makes it the example *par excellence* of all such diseases. In Swift’s case the phenomenon is almost ideally “typical”:

“I have had my giddiness 23 years by fits.” (45.)

“Mr. Lewis assures me that you are now well.” (45.)

“Swift is in perfect health and spirits, the joy of all here who know him, as he was eleven years ago.” (57.)

“I have recovered my hearing for some time at least, recovered it so as not to be troublesome to those I converse with, but I shall never be famous for acuteness in that Sense, and am in daily dread of Relapses.” (57).

“My deafness has left me above three weeks, and therefore I expect a visit from it soon.” (57.)

“I was nine weeks very ill in England, both of Giddyness and Deafness, which latter being an unconvertible disorder I thought it

better to come to a place of my own, than be troublesome to my friends or live in a lodging; and this hastened me over, and by a hard Journey I recovered both my Aylments." "Neither did I go to Court, except when I was sent for, and not always then. Besides my illness gave me too good an excuse the last two months." (59.)

"I should think according to what hath been formerly, that I may happen to overcome this present disorder." (59.)

"All that we have left now to comfort us, is to hear that you are in good health." (59.)

"To our great joy, you have told us, your deafness left you at the inn in Aldersgate Street." (59.)

"The recovery of your health." (60.)

"My head is never perfectly free from giddiness, and especially toward night. Yet my disorder is very moderate, and I have been without a fit of deafness this half year." (61.)

"I never was better in my life than this winter." "I have escaped both headaches and gout." (63.)

"As you have had several attacks of the giddiness you at present complain of, and that it has formerly left you, I will hope, that at this instant you are perfectly well." (63.)

"I am just recovered in some degree, of two cruel indispositions, of giddiness and deafness, after seven months. I have got my hearing; but the other evil hangs still about me, and I doubt will never quite leave me, until I leave it." (64.)

"I am extreme glad to hear you are got well again; and I do assure you, it was no point of ceremony made me forbear writing, but the downright fear of being troublesome. If you have got off your deafness, that is a happiness I doubt poor Lady Suffolk will never have." (65.)

"I am tolerably well, but have no security to continue so." (67.)

"Good stomach improves every day."

"I sincerely congratulate with you upon the recovery of our dear friend the Dean." (68.)

"I have been very ill these two months past with giddiness and

deafness, which lasted me until about ten days ago, when I gradually recovered, but still am weak and indolent." "I am well enough to ride." (68.)

"I received yours of the 9th of March, with the state of your health, which was the more agreeable, as it contradicted the various reports we had of you." (69.)

"The Dean's better health." (69.)

"You had been ill, but were perfectly recovered." (69.)

". . . now in perfect health." (69.)

"Though others tell me you are in pretty good health, and in good spirits, I find the contrary when you open your mind to me." (69.)

"I found by your last, that your hand and your head are both in so good a condition." (70.)

"I received a letter from you at Cirencester, full of life and spirits." (70.)

"I had the pleasure of hearing you were well and in good spirits." (70.)

"The Dean is in good health." (71.)

"His health is as good as can be expected, free from all the tortures of old age; and his deafness, lately returned, is all the bodily uneasiness he has to complain of." (72.)

"Mr. Stopford who told me that you had enjoyed a better state of health last year than you had done for some time past." (72.)

DESPONDENCY, MISANTHROPY, AND THE DREAD OF INSANITY.—When a severe and constantly recurring disease of mysterious origin and nature afflicts a patient; when the disease is not one *per se* that shortens life; when insanity does not, or need not, result; when the disease which tortures both body and mind is easily curable—then the effect of the tragedy upon the onlooker passes from the highest pathos to the profoundest

grief of sympathy and to the extremity of indignation. These were the conditions throughout Swift's life. The nature of his disease is now well known, and we have thousands of living demonstrations that it was due to an easily removable cause, but the tradition and the habit of medical minds of that time, as Craik says, was that it was "due to structural malformation near the brain." Craik alludes, of course, to the exploded myth of *Ménière*. But even Craik, a nonmedical man, had the astuteness denied to the present day professional leaders, to suggest the doubt, even in the face of the no-knowledge, that it is not necessarily so. Vast numbers of patients afflicted with migraine, a disease peculiarly fitted to set up the brooding and fear, have in the past entertained the same secret horror of subtle fateful brain disease. Most of our biographic clinics illustrate it to-day. Millions of sufferers are needlessly tortured by "migraine," and of these a large proportion are torturing themselves with the concealed fear of insanity and coming death. As did Swift, these plainly gave way to unnecessary solicitude about their health. Swift's correspondents understood this, often alluded to it, and upbraided him for giving away. Swift even confesses that he used the fear of coming attacks to keep him from sociability, and that he made excuses of his nonexistent deafness, loss of memory, etc., to avoid meeting people, etc. Pessimism and misanthropy, when coupled with "frenzied physical exercise," even if one knew no other symptoms of a patient, would lead the alert oculist to a tentative diagno-

sis pretty certainly to be proved by further questioning. And if this further inquiring brought out the symptoms clumsily and loosely grouped under the terms "Migraine," "Ménière's disease," "bilious attacks," "nervous headache," "nervous dyspepsia," "sick headache," "neurasthenia," "nervous breakdown," "nervous prostration," "hysteria," etc. (unknown names for unknown diseases, of unknown nature and unknown therapeutics!)—then the fashionable medicine of the present time would—well, would go on as it has done since "Migraine" has existed and since Ménière taught. And yet, and yet, "Migraine" and Ménière's disease are more easily curable or preventable than ingrowing toe-nail.

But let us examine the patient:

"I detest the world because I am growing wholly unfit for it."
(57.)

"I have been long weary of the world, and shall for my small remainder of years be weary of life having forever lost that conversation which could only make it tolerable." (about 58.)

"I continue very ill with my giddiness and deafness, of which I had two days intermission, but since worse, and I shall be perfectly content if God shall please to call me away at this time."
(59.)

"But I grow so old that I despond, and think nothing worth my care except ease and indolence, and walking to keep my health." (59.)

"I hear you are melancholy because you have a bad head and deaf ears." (Mrs. Howard to S.) (59.)

"What have I to do in the world? I never was in such agonies."
(about 59.)

"For life is a tragedy wherein we sit as spectators awhile, and act our own part in it. Self-love, as it is the motive to all our actions, so it is the sole cause of our grief." (60.)

"I fear my present ill disposition both of health and mind has made me but a sorry comforter." (60.)

"seldom in a tolerable humour by the frequent returns of dreads of Deafness." (61.)

"Whatever may be the correct medical theory of Swift's malady, the story of these last years stands out, in its main features, clearly enough. During 1738 and 1739, as we have seen the irritation greatly increased; in 1740, it rendered him scarcely capable of seeing strangers: and to his morbid gloom was now added either loss, or absolute confusion, of memory. It was during this year that the miserable wrangle about the correspondence, bred of Pope's vanity and deceit, was dragging on its course; and Swift was as unheeded and unheeding in the midst of the attacks upon him, as if he had been dead." (Craik.) (60, 61, and 62.)

"I live wholly within myself; most people have dropt me, and I have nothing to do, but fence against the evils of age and sickness as much as I can, by riding and walking." (62.)

"When I was of your age, I thought every day of death, but now every minute; and a continual giddy disorder more or less is a greater addition than that of my years." (65.)

"I want health and my affairs are enlarged; but I will break through the latter, if the other mends. I can use a course of medicines; lame and giddy." (65.)

"I could heartily wish your other complaints were as much without foundation, as that of having lost half your memory, and all your invention." (65.) (Ford, letter to S.)

"with so ill a memory and so bad a state of health." (65.)

"If my health and the bad situation of my private affairs will permit." (65.)

"You will observe in this letter many marks of an ill head and a low spirit." (65.)

"I have too many years upon me and have too much sickness." (65.)

"Dispirited enough by sickness and years." (65.)

"I do not think life is of much value, but health is worth everything, and nature acts right in making that method which prolongs life absolutely necessary to preserve health, which makes a short life and a merry a very foolish proverb. For my own part I labor daily for health as often and almost as many hours as ever man does for daily bread." (65.)

"I am as sick of the world as I am of age and disease, the last of which I am never wholly without." (66.)

"Am afraid of being surprised by my old disorder in my head, far from help, or at least conveniency; and I dare not so much as travel here without being near enough to come back in the evening to lie in my own bed." (67.)

"My death, which my bad state of health makes me expect every month." (67.)

"My state of health is not to boast of; my giddiness is more or less too constant; I sleep ill and have a poor appetite I can as easily write a poem in the Chinese language as my own." (67.)

" . daily increase of ill health and old age." (68.)

"Years and infirmities have sunk my spirits to nothing." (68.)

" . so ill a state of health, and lowness of spirits." (68.)

"My disorders with the help of years, make wine absolutely necessary to support me." (about 68.)

"Years and infirmities have quite broke me; I mean that odious continual disorder in my head. I neither read nor write nor remember nor converse. All I have left is to walk and ride." (69.)

"I find such a weekly decay, that has made it impossible for me to ride above five or six miles at farthest, and I always return the same day heartily tired." (69.)

"My health is very much decayed, my deafness and giddiness are more frequent; spirits I have none left; my memory is almost gone." (69.)

"I have for almost three years past been only the shadow of my former self, with years and sickness." (69.)

"I have entirely lost my memory, incapable of conversation by a cruel deafness, which has lasted almost a year, and I despair of any cure." (70.)

"I have been many months the shadow of the shadow, etc., of Dr. Swift. Age, giddiness, deafness, loss of memory, rage, and rancour against persons and proceedings—I have not recounted the twentieth part—*I nunc et versus tecum meditare canoros.*" (70.)

"I am already alarmed with your excuse of deafness and dizziness. Yielding to such a complaint always strengthens it; exerting against it generally lessens it. Do not immerge the sole enjoyment of yourself." (71.) (Castledurrow to S.)

"The year which followed was one, not of gradual, but of rapid, decay. Disease had long been there; but old age was now opening the way for its fiercer inroads. The strong brain that had so long resisted the attack, was now too weak to maintain the struggle; memory was going: the tenacity of his clear logic had dwindled into the losse and broken peevishness of senility. The decline into absolute ruin was quick and striking." (72.) (Craik.)

"In August and September, 1739, his memory was still in such a condition that by the assistance of an intimate friend, who was acquainted with the current of his politics and conversation, so far as they regarded his own times, he could have entertained with pleasure any stranger whatever, but not without the help of such an assistant: for, in the rapidity of his discourse, his memory would frequently fail him: yet by turning to his friend and asking with a seeming carelessness, 'What was I going to say?' he would, upon the least hint, recollect his ideas." Transcript of letter from Deane Swift to Lord Orrery, amongst Lord Cork's MSS. (72.)

Five years before his death he wrote to his cousin: "I have been very miserable all night, and to-day extremely deaf and full of pain. I am so stupid and confounded that I cannot express

the mortification I am under both in body and mind. All I can say is that I am not in torture; but I daily and hourly expect it. Pray let me know how your health is and your family. I hardly understand one word I write. I am sure my days will be very few; few and miserable they must be. If I do not blunder it is Saturday, July, 26, 1740. If I live till Monday I shall hope to see you, perhaps for the last time." (72.)

"Even she (Mrs. Whiteway) was forced to visit the Deanery by stealth in order to see that he was cared for. Unseen by him, she watched the Dean, as in his restless agony he paced the room ceaselessly walking, as she tells us, for ten hours a day. He would eat only when alone: and even after it had been left in his room for hours, his food was often taken away untouched." (74.)

Another prayer was also overheard, when he cried in his agony "to be taken away from the evil to come." In January, 1742-41, his behaviour, we are told, "was grown perfectly intolerable." (74.)

"I eat my morsel alone like a king, and am constantly at home when I am not riding or walking, which I do often and always alone." (?)

"I had at least half a dozen returns of my giddiness and deafness, which lasted me about three weeks a-piece. When this disorder is on me I have neither spirits to write, or read, or think, or eat." (?)

Johnson replied: "That does not make his book the worse. People are influenced more by what a man says, if his practice is suitable to it, because they are blockheads."

"My breakfast," he wrote, "is that of a sickly man, rice gruel; and I am wholly a stranger to tea and coffee."

"To all people of quality and especially of titles I am not within; or at least am deaf for a week or two after I am well."

"He allowed his friends to speak of that malady that filled him with such ghastly forebodings, in the tone of light comment, that suited their own passing ailments. Dark as his future was to himself, he did not show its full gloom to his friends." (Craik).

"In later years cynicism, enduring sadness, and increasing dis-

ease wore away the sprightliness of aspect that belonged to him: and as the Dictator of St. Patrick's, he bore a look that is disagreeable in its overstrained haughtiness,—a look which in a lesser man one would have been inclined even to call one of insolence. In the Deanery at St. Patrick's, and at Howth Castle, there are portraits of Swift, taken long after this, when the Drapier bore dictatorial sway in Dublin: and in both of these we see the domineering sneer with which he accepted the incense of a nation whose applause he despised even while he courted. The brightness, the keen eye of the ready combatant, the freedom of the humorist, all are gone; and we see instead, a man whose hopes are dead, to whom life has yielded chiefly the withered leaves of cynicism, and who, with a sort of studied carelessness, accepts the power that has fallen to his lot, in a sphere beyond whose narrow confines he had once borne sway. There is another picture, which appears in Lord Orrery's Remarks, which is clearly one of Swift in his later days, just before he entered on the dark valley that for him preceded death. In it we see the anguish, the loneliness, the despair of one who sounded depths in human nature that he feels would have been better unexplored, and who stands gazing as it were, into a future which is overcast by dread of coming ill. Another portrait is one taken from a cast after death, when that later placidity which, we are told, belonged to his appearance in the second infancy of old age, had passed away, and there remained only the distorted wreck that partial paralysis, preceding death, had left." (Craik.)

"There was indeed one other very real and very terrible excuse for Swift. Amongst all the stories of mental struggle of which our literary annals are full, there is none which is so full of mysterious interests as that of Swift. Beyond all troubles of fierce temper, violent emotions and over-strained self-inspection, beyond all the ravages wrought upon a high-strung nature by years of dependence, poverty and repression, beyond the loneliness that came from his scornful pride. Swift had another burden to bear. This was the forboding of mental darkness. Though insanity, even at the end,

scarcely seemed to release him from the pains of self-consciousness, yet the dread of it hung over him ceaselessly through life. It was no process of gradual decay. Until it dealt its final and decisive blow, it neither clouded nor impaired the clearness of his intellect. But ever-recurring pain warned him that the inevitable and unconquering cause was there, and the struggle seemed only the more intense from the strength of the citadel that was at last to be overthrown. We shall have to return to this more than once when the symptoms become more marked: but this much it is well to lay down at the outset of Swift's life. To say what he had to say with absolute simplicity: to be clear as to his own position and his own aims: to be misled by no abstractions: these were main objects in Swift's life. But, for all that, it was a life darkened by a constant struggle, foreseeing defeat at last, and made melancholy by the physical inroads through which that defeat was finally accomplished."

"Of these mere physical causes it belongs rather to medical science than to literary biography to speak. Their outward symptoms were those two maladies which from the age of twenty to his death never for any long period left him. What they meant, how they arose, what tended to their aggravation, it is hard to say. Swift himself, was fond of recurring to the theory of some trifling occasion, such as an early surfeit of fruit or an accidental chill. On these, the first and last words have been spoken by Johnson. 'The original of diseases,' he says, 'is commonly obscure; and almost every boy eats as much fruit as he can get, without any inconvenience.' Swift no doubt felt in later years, some injury to his health both from fruit and from chills. But with no undue confidence we may assert that the real source of the disease lay more deep; and medical investigation, if it does not absolutely prove, is at least consonant with the belief that he suffered from structural malformation near the brain. Whatever its character might be, that malformation never till the end obscured the marvellous lucidity of his thought, but neither did it ever suffer him to forget the signs of disease that

it produced. In Swift we have one whose clearness of intellectual vision never needs to ask for a lenient judgment, but whose moral depression calls from first to last for all the forbearance we can show." (Craik.)

"The same absence of sympathy with his fellow men explains the unconscionable irreverence with which he often treats religion. Strict as was the discipline that Swift imposed upon himself, yet the greater part of the world of ordinary religious ideas was a region where there was no resting-place for him. Unquestionably Swift's was a nature, in the highest sense, religious: we feel that Swift, though he never attained to true poetic utterance, had a temperament, which in his own words, was 'blasted with poetic fire.'" (Craik.)

"The question is sure to occur, what justification was there for all this gloom and misanthropy?" (Craik.)

"Johnson knew and shrank from, the bitterness that was bred in Swift as it was in himself, of hardship, of early poverty, of disappointed hopes, and of the ceaseless burden of ill-health."

As to Swift's "Insanity," his biographer is correct in denying anything of the kind, even in the last days, if a correct definition of the term is held in mind. It was indeed marvellous that he had not long previously become really insane:

"Sir William Wilde in his *Closing Years of Dean Swift* gave the first careful analysis of Swift's symptoms: and successfully proved that the term insanity had been far too sweepingly applied to Swift. He showed that the Dean suffered throughout life from brain pressure, aggravated by gastric attacks; and that congestion, to which he says the name of *epileptic vertigo* might be applied, was ultimately accompanied by paralysis, under which the brain sank into lethargy rather than insanity."

Sir William's "brain-pressure," "gastric attacks," "congestion," and "epileptic vertigo" would need but a passing smile, if "the most recent and most careful medical analysis" did not still keep on to-day to mumble the same inept, ludicrous, and meaningless words. And yet the biographer feels compelled to add:

"His final insanity was of a peculiar kind. According to the most recent and careful medical analysis, it was no slowly developing disease of the brain itself, gradually deepening from partial into confirmed insanity. Until the actual injury came to the brain, Swift, however morbid in his mood, however bitter in his cynicism, and however unmeasured his anger, was as far from insanity as could be conceived. Structural malformation was there, affecting the nerves of the ear, and producing giddiness and deafness." (Craik.)

Pseudoscientific impertinence! Most people are "insane," have dementia and "paralysis" during the death-rattle. In the "Unpublished Letters of Dean Swift," one reads: "Who can wonder that Sir Robert Walpole exclaimed, *Anything but History, for History must be false.*" Possibly Walpole and Swift were thinking of the medical kind of history!

THE DOCTORS OF SWIFT'S TIME.—A glance at the puzzles and practices of the physicians of Swift's day is not without an illuminating suggestiveness—left to the reader's mind without comment.¹

¹The doctors of no time are much concerned with the rôle that tobacco plays in the production of pharyngeal, aural, and nervous disease. Snuff-taking should be particularly injurious. Swift wrote:

"My head is pretty tolerable, but every day I feel some little disorders; I have left off snuff since Sunday, finding myself much worse after taking

"This doctor tells me that I must go into a course of steel though I have not the spleen." (44.)

"I must go and take a bitter draught to cure my head." (45.)

"I have done good lately to a patient and a friend in that complaint of vertigo, by cinnabar of antimony and castor, made up into boluses with confect of alkermes. I had no great opinion of the cinnabar; but trying it amongst other things, my friend found good of this prescription. I had tried the castor alone before, not with so much success. Small quantities of tinctura sacra, now and then will do you good." (51) (Arbuthnot to S.)

"But I thank God for some time past I am pretty well recovered and am able to hear my friends without danger of putting them into consumptions. My remedy was given me by my Tayler, who had been four years deaf and who cured himself as I have done by a Clove of Garlick steeped in Honey, and put into his ear, for which I gave him half a crown after it had cost me 5 or 6 Pounds in Drugs and Doctors to no Purpose." (53.)

"I know how unhappy a vertigo makes anybody that has the misfortune to be troubled with it. I might have been deep in it myself, if I had had a mind, and I will propose a cure for you, that I will pawn my reputation upon. I have of late sent several patient in that case to the Spa, to drink there of the Geronstere water, which will not carry from the spot. It has succeeded marvellously with them all. There was indeed, one who relapsed a little last summer, because he would not take my advice, and return to his course,

a great deal at the Secretary's, April 14. My head is still wrong, but I have had no normal fit only I totter a little. I have left off snuff altogether. I have a noble roll of tobacco for grating, very good." June 7. "Are you as vicious in snuff as ever? I believe, as you say, it does neither hurt nor good; but I have left it off and when anybody offers me their box I take about a tenth part of what I used to do, and then just smell to it, and privately fling the rest away; I keep to my tobacco still as you say, but even much less of that than formerly, only mornings and evenings and very seldom in the day." He never smoked but he used to snuff up cut and dry tobacco, which sometimes was just colored with Spanish snuff. He would not own that he took snuff." (43.)

that had been too short the year before. But, because, the instances of eminent men are most conspicuous, Lord Whitworth, our plenipotentiary, had this disease, (which, by the way, is a little disqualifying for that employment); he was so bad that he was often forced to catch hold of anything to keep from falling. I know that he was recovered by the use of that water to so great a degree, that he can ride, walk, or do anything, as formerly." (56.) (Arbuthnot to S.)

"I wish the poison were in my stomach (which may be very probable, considering the many drugs I take)." (59.)

"His physician and friend, Dr. Arbuthnot assures me, he will soon be well." At present, he is very deaf, and more uneasy than I hoped that complaint alone would have made him." (59.) (Mr. Pope to Dr. Sheridan concerning S.)

"I have been this ten days inclined to my old disease of giddiness, a little tottering: our friend understands it, but I grow cautious, am something better; cyder and champaign and fruit have been the cause. But I am now very regular and I eat enough." (59.)

"I long to eat of your fruit, for I dare eat none here." (59.)

"I am extremely sorry that your disorder has returned; but as you have a medicine that has twice removed it, I hope by this time you have again found the good effects of it." (Mr. Gay to S.) (59.)

"I have mentioned the case as well as I know it to a physician, who is my friend; and I find his methods were the same, air and exercise, and at last ass's milk. I will tell you sincerely, that if I were younger, and in health, or in hopes of it, I would endeavor to divert my mind by all methods in order to pass my life in quiet; but I now want only three months of sixty, I am strongly visited with a disease, that will at last cut me off, if I should this time escape; if not, I have but a poor remainder, and that is below any wise man's valuing." (59.)

"I have passed six weeks in quest of health, and found it not: but I found the folly of solicitude about it in a hundred instances:

the contrariety of opinions and practices, the inability of physicians, the blind obedience of some patients and as blind rebellion of others. I believe at a certain time of life men are either fools or physicians for themselves; and zealots or divines for themselves." (60.) (Pope to S.)

"Mrs. Dingley says she cannot persuade Mrs. Brent to take a vomit. Is she not (do not tell her) an old fool? She has made me take many a one without mercy." (60.)

"That you are very much out of order; sometimes of your two old complaints, the vertigo, and deafness, which I am very sorry for." (Dr. Arbuthnot to S.) (60.)

"The passage in Mr. Pope's letter about your health does not alarm me: both of us have had the distemper these thirty years. I have found the steel, the warm gums, and the bark, all do good in it. Therefore, first take the vomit A; then every day, the quantity of nutmeg in the morning, of the electuary marked B, with five spoonfuls of the tincture marked D. Take the tincture but not the electuary in the afternoon. You may take one of the pills marked C, at any time when you are troubled with it; or thirty of the drops marked E, in any vehicle, even water. I had a servant of my own, that was cured merely with vomiting. There is another medicine not mentioned which you may try; the pulvis rad. valerianæ sylvestris, about a scruple of it twice a day." (62.) (Dr. Arbuthnot to S.)

A.

℞. pulv. rad. ipecacoanæ, scruple 1.

B.

℞. conserv. flavedin. aurant. absynth. Rom. ana drams vi rubigin, martis in pollin. redact. drams iij. syrup e succo kermes, q. s.

C.

℞. as. foetid. drams ij. tinctur. castor. q. s. M. Fiant pilulæ xxiv

D.

R̄. cortic. peruviani elect. rubigin. martis ana dram i, digere tepide in vini alb. Gallic. lb. ij per 24 horas: postea fiat colatura.

E.

R̄. sp. cor. cerv. sp. lavendul. tinctur. castor. ana dram ij misce^r

"She has fancied herself in a consumption a great while: but though she has had the most dreadful cough I ever heard in all my life, all the doctors said it was not that; but none of them did say what it was. The doctor here, who is an extraordinary good one, (but lives fourteen miles long, long miles off), has lately been left ten thousand pounds, and now hates his business; but says it is a sharp humour that falls upon her nerves, sometimes on her stomach and bowels; and indeed, what he has given her has, to appearance, had much better effect than the millions of things she has been forced to take." (64.) (From Lady Betty Germain to S.)

"I am extremely concerned to hear of the ill state of your health. I was afraid of it, when I was so long without the pleasure of hearing from you. Those sort of disorders puzzle the physicians everywhere; and they are merciless dogs in purging or vomiting to no purpose, when they do not know what to do. I heartily wish you would try the Bath waters, which are allowed to be the best medicine for strengthening the stomach; and most distempers in the head proceed from thence. Vomits may clean a foul stomach but they are certainly the worst things than can be for a weak one." (65.) (Ford to S.)

"Lane only pours down medicines for the sake of the apothecary, and though he reaps the benefit of them I receive none." (65.) (Miss Kelly to S.)

¹As these receipts may possibly be useful to some person troubled with the Dean's complaint of giddiness, Dr. Arbuthnot's receipt of bitters for strengthening the stomach, is added.

Take of zedoary root one drachm; galangal and Roman wormwood, of each two drachms; orange peel, a drachm; lesser cardamom seeds, two scruples. Infuse all in a quart of boiling water, for six hours; strain it off, and add to it four ounces of greater compound wormwood water. . . . H.

"I know physicians who, if you take them out of their practice, are very good sort of men; but was there ever in the world a consultation of them, that tended to anything else than robbery and murder?" (Bathurst to S.) (65.)

"My breakfast is that of a sickly man, rice-gruel." (66.)

"I am sorry to hear your complaints still of giddiness. I must recommend to you a medicine, which is certainly a very innocent one, and they say does great good to that distemper, which is only wearing oil-cloth the breadth of your feet, and next to your skin. I have often found it to do me good for the headach." (67.) (Lady Betty Germain to S.)

"Heartily thank you for your generous invitation, which, however, I dare not accept for fear of another attack; against which I must fence, by taking vomits and other medicines prescribed for me by some physicians who happen to be my friends." (67.)

"I am glad you have got the piles, because it is a mark of health, and a strong constitution." (68.)

"Prevented by my old disorder in my head; for which I have been forced to confine my self to the precepts of my physicians." (68.)

"As you are sensible your disorders are chiefly occasioned by a cold stomach, I believe there is not anything so likely in this world to cure that disorder as the Bath waters; which are daily found to be a sovereign remedy for disorders of that kind: I know, Sir, you have no opinion of drugs, and why will you not try so agreeable a medicine, prepared by Providence alone?" (68.) (Mrs. Barbour to S.)

"My constitution must certainly be a pretty good one; for it has resisted the attacks of five eminent physicians for five months together, and I am not a jot the worse for any of them." (69.) (Pultenay to S.)

"The epileptic tendency to which so many of the Dean's symptoms point, appears to have broken out fiercely at the last. For thirty-six hours, we are told, he lay in strong convulsive fits. But these passed away: and the final exhaustion came on." (77.)

From the report published in 1882 by Dr. Bucknill¹ on the subject of Swift's disorder, I quote:

"The maladies of giddiness and deafness from which he suffered had their common origin in a disease in the region of the ear, to which the name of *Labyrinthine vertigo* has been given. He was, however, well advanced in life before these disorders attacked him at the same time. In 1734, he said: 'It is only of late years that they have begun to come together.' 'I got my giddiness,' he said, 'by eating a hundred golden pippins at a time.' And of this Johnson remarks: 'The original of diseases is commonly obscure. Almost every boy eats as much fruit as he can get without inconvenience.' Thinking little, exercise, and wine were Swift's chief remedies. *Vive la bagatelle* was his favourite maxim. He was like Johnson in thinking weather and seasons of slight importance. 'I never impute any illness or health I have to good or ill weather, but to want of exercise, or ill air, or something I have eaten, or hard study, or sitting up; and so I fence against those as well as I can: but who a deuce can help the weather?' " (Hill, Unpublished Letters of S).

"The fanaticism of our day, which accidental coincidences of vapours in the brain produce, is as old as the Sect of the Aeolists with their wind-bags, and as the frenzy of the priestess of the Delphi oracle. Compare *Hudibras*, Part II, Canto iii, v. 773, with the ninth section of the Tale." (Craik.)

"In such a spirit Arbuthnot waited for death, which released him in the following spring, his piety mingled to the end with much of his half-humorous half-philosophical apathy, which suggests to old Alderman Barber the saying of Garth, as applicable to Arbuth-

¹Bucknill's worthless article is a good example of the easy slipshod acceptance of a diagnosis by the modern "scientist," who without any labor in gathering facts or ability to digest them, slides over all difficulties with that skill which gives the false satisfaction to the author and to the careless reader the erroneous impression of knowledge and observation.

not, 'that he was glad to die, being weary of having his shoes pulled off and on.'” (Barber to Swift, April 22, 1735.) (Craik.)

THE EYES AND THEIR ABUSE CAUSED ALL THE MISCHIEF.—Owing to Swift's prejudice, at once ludicrous and tragical (how frequent in Medicine is the combination!) against spectacles, we have a most unusual mass of data showing that the eyes themselves suffered and caused the suffering. Generally in the worst kinds of systemic reflexes starting in the eyes there are few or no complaints or diseases of the eyes. This is according to a well-understood law. But in Swift's case, the most outrageous disregard of every rule of ocular hygiene, and the greatest abuse of the eyes, brought disease of the organs themselves. This, in “the vicious circle of disease,” recreated and intensified the attacks and infrequencies of cerebral, aural, gastric, and other reflexes so common in migraine.¹ The increased severity of these morbid effects, is, as always, noteworthy, by increased reading, writing, etc. As in so many cases, past and present, the immediate connection between near work with the eyes and the recurrence and intensification of the attacks is strikingly suggestive.

¹Swift also had many of the somewhat rarer but still frequent symptoms of migraine known by the old-time doctors but well forgotten by the new-time ones. For instance, he was often “plagued by perpetual colds and twenty ailments.” by “cruel cold,” “bad cold,” etc. And he had that symptom daily complained of in patients with sick headache,—“pain these two days exactly on top of the left shoulder,” “constant pain in the shoulder,” “not able to go to church or court for my shoulder.” Illustrations of different reflexes could be added.

"His sight had long been failing. Twelve years earlier he had told how Vanessa:

"Imaginary charms can find
In eyes with reading almost blind." (42.)

"You must know I write on the dark side of my bed-chamber, and am forced to have a candle till I rise, for the bed stands between me and the window, and I keep the curtains shut this cold weather. So pray let me rise; and Patrick, here, take away the candle." (43.)

"His head confounded everything; often he could not scribble even his morning lines to MD, and, with his occasional giddiness, he found the late dining of the ministers a thing to be avoided. He walked, because of the walk, but he walked plaguy carefully, for fear of sliding against his will." (43.)

"He had, sitting in bed that morning, a fit of giddiness; but he hoped in God he should not have more of it. He attributed it to late sitting and writing on the previous night. He had taken brandy; he never now eats fruit or drinks ale; and he has better wine than they. The fit had troubled him sorely, he is at no pains to conceal, and next night, without going to the coffee-house, he came home at six, and writ not above forty lines ('some inventions of my own; and some hints'), and read not a bit, and all for fear little MD might be angry; and he took four pills which lay in his throat an hour; and he supposed he could swallow four affronts as easily. Next day, and day after, he had no giddiness." (43.)

"This involved close and constant work, and Swift paid for it the penalty of ill-health. Close and ill-ventilated lodgings, with the press of exciting business, brought back his old enemies, deafness and giddiness." (43.)

"I was lying ill of a cruel disorder, which still pursues me, although not with so much violence; and I hope your grace will pardon me, if you find my letter to be that of one who writes in pain." (44.)

"This letter 45 is very brief; so altered in the writing by illness as hardly to be recognizable for his; and is addressed in another hand." (44.)

"A very disordered head hindered me from writing early to your lordship." (45.)

"I have been about five weeks in this kingdom, but so extremely ill with return of an old disorder in my head, that I was not able to write to your grace. I have been the greatest time at my country parish, riding every day, for my health. I can tell your grace nothing from Dublin, having spent the days I was there between business and physic." (45.)

"Have been hindered from writing by the illness of my head and eyes, which still afflict me." (50.)

"Neither my Head nor Eyes will suffer me to write more." (50.)

In some pretty lines to Stella on her birthday, Swift said:

"For nature always in the right
To your decay adapts my sight;
And wrinkles undistinguished pass,
For I'm ashamed to use a glass;
And till I see them with these eyes,
Whoever says you have them, lies."

On another birthday he wrote to her:

"This day then let us not be told
That you are sick and I grown old;
Nor think on our approaching ills,
And talk of spectacles and pills." (About 50.)

"I think to go soon into the country for some weeks for my Health." (50.)

"This is as much as I can send you at present from a giddy aking head." (52.)

"I can do no work this terrible weather; which has put us all seventy times out of patience. I have been deaf nine days, and am now pretty well recovered again." (56.)

"You shall take care of your health, and go early to bed and not read late at night." (57.)

"I am again with a Fitt of Deafness. The Weather is so bad and continues so beyond any Example in memory, that I cannot have the Benefit of riding and I am forced to walk perpetually in a great Coat to preserve me from Cold and wett." (57.)

"I read no prints." (57.)

"The Fault of my Eyes the Confusion of my Deafness and Giddyness of my Head have made me commit a great Blunder. I am just come from the Country where I was about three weeks in hopes to recover my health." (57.)

"My eyes will not suffer me to read small prints; nor anything by Candle-light, and if I grow blind, as well as deaf, I must needs become very grave, and wise, and insignificant." (57.)

"I cannot read at night, and I have no books to read in the day." (About 59.) (Hill.)

"I have so severe a defluxion of rheum on both my eyes that I dare hardly stir abroad. You will be ready to say, physician, cure thyself; and that is what I am about. I took away by cupping, fourteen ounces of blood; and such an operation, would, I believe, have done *you* [italics by the editor] more good than steel and bitters, waters and drops." (59.) (Bolingbroke to S.)

"Ask all the friends I write to, and they will attest this mistake to be but a trifle in my way of writing, and could easily prove it if they had any of my letters to show. I make nothing of mistaking untoward for Howard; wellpull for Walpole; knights of a share for knights of a shire, monster for minister; in writing speaker I put *n* for *p*; and a hundred such blunders which cannot be helped, while I have a hundred oceans rolling in my ears, into which no sense has been poured this fortnight; and therefore, if I write nonsense, I can assure you it is genuine and not borrowed." (59.)

"I never was in such agonies as when I received your letter and had it in my pocket. I am able to hold up my sorry head no longer." (59.)

"I can hold up my head no longer." (59.)

"This is a long letter for an ill head." (59.)

"My head will not bear writing long." (59.)

" . . . where I used to read and——, there I got my deafness." (59.)

"He wrote down his feelings and the record of her character, beginning that night, and continuing from day to day, save when 'his head aches, and he can write no more.' " (60.)

"The same vexatious ailment, when I could neither give myself the trouble to write or read." (60.)

"Finding it troublesome to read at night." (60.)

"This is all I can see after half blinding myself with reading yr Clerks copyes." (61.)

"I lived very easily in the country; Sir Arthur is a man of sense and a scholar, has a good voice, and my lady a better; she is perfectly well bred and desirous to improve her understanding, which is good, but cultivated too much like a fine lady. She was my pupil there, and severely chid when she read wrong; with that, and walking, and writing family verses of mirth by way of libels on my lady, my time passed very well, and in very great order; infinitely better than here, where I see no creature but my servants and my old Presbyterian housekeeper, denying myself to everybody till I shall recover my ears." (61.)

"Yet I cannot read at nights, and am therefore forced to scribble something, whereof nine things in ten are burned next morning." (63.)

"I am sorry that my writing should inconvenience your eyes, but I fear it is rather my style than my ink, that is so hard to be read; however, if I do not forget myself, I will enlarge my hand to give you the less trouble." (64.) (From a letter to Swift.)

"Perpetual pains in my head have hindered me from writing till

this moment, so you see you are not the only person that way tormented. I dare believe there are as many bad heads in England as in Ireland; I am sure none worse than my own; that I am made for pain, and pain for me; for of late, we have been inseparable. It is a most disspiriting distemper. And bring on pain of mind, real of imaginary, it is all one." (65.) (Duchess of Queensberry to S.)

"I am happy that what you write is printed in large letters otherwise between the weakness of my eyes, and thickness of my hearing, I should lose the greatest pleasure that is left me." (66.)

"God be thanked, I have done with everything, and of every kind, that requires writing, except now and then a letter; or like a true old man, scribbling trifles only fit for children or schoolboys of the lowest class at best, which three or four of us read and laugh at to-day, and burn tomorrow. Yet, what is singular, I am never without some great work in view, enough to take up forty years of the most vigorous healthy man: although I am convinced that I shall never be able to finish three treatises, that have lain by me several years, and want nothing but correction." (66.)

"I shall lose my health by sitting still and my leg in a chair." (67.)

"I am truly surry for any complaint you have, and it is in regard to the weakness of your eyes that I write (as well as print) in folio." (67.) (Pope to S.)

"I could never be weary, except at the eyes, of writing to you." (68.) (Pope to S.)

"I found my head so disordered by writing a little, that I was fearful of having gout in it." (68.) (Mrs. Barber to S.)

"You must indulge me the liberty of making use of another hand; for whether it be owing to age, or writing formerly whole nights by candle-light, or to both those causes, my sight is so impaired, that I am not able, without much pain to scratch out a letter. (69.) (Lewis to S.)

"I can hardly write ten lines without twenty blunders, as you will see by the number of scratchings and blots before this letter is done." (69.)

"The use I have formerly made of my eyes in writing by candle-light, have now reduced me almost to blindness, and I see nothing less than the pips of the cards, from which I have some relief in a long winter evening." (69.) (Lewis to S.)

"This chancing to be a day that I can hold a pen, I will drag it as long as I am able." (69.)

"I am able to write no more." (69.)

"Books turn our brain; and work spoils our eyes." (70.) (Mrs. Whiteway to Mr. Richardson.)

"You will pardon the Dean that he does not write to you himself on the occasion; for his head is very much out of order to-day." (71.) (Mrs. Whiteway to Mr. Richardson.)

"The Dean is better both in health and hearing than I have known him these twelve months; but so indolent in writing, that he will scarce put his name to a receipt for money." (71.) (Mrs. Whiteway to Mrs. Richardson.)

"Violent inflammation, which at first extended over his body, and finally settled into a painful abscess in the eye. For weeks, his agony was so great that it sometimes required the strength of five men to prevent this enfeebled old man of seventy-three from tearing his eyeball from his head. At length the torture did its work. The swelling in the eyeball sank, and the pain ceased. The last struggle of the long combat was over; and the strong man, so long invincible even in decay, sank into apathy and silence forever. In this state he spent three years of living death. There was no longer any frenzied resistance to the mental decay;" (73.)

"His appetite is good." "Mortification in his eyelid." (75.) (From Orrery to Deane Swift.)

The further solution of the riddle is found in this paragraph:

"He would not let art remedy the failings of nature; for, having by some ridiculous resolution or mad vow, determined never to

wear spectacles, he could make little use of books in his latter years." ("Hill's Unpublished Letters of Dean Swift.")

And for over one hundred years after Swift died, none, lay or professional, observed that the morbid action of the eyes, the most important of the senses or organs of the body, had any morbid effects beyond themselves. However often proved and demonstrated in the added sixty-three years since the one hundred have passed, the "great" and "leading" oculists and clinicians of the world still deny the effects, and whistle millions of patients through their offices with these direct and glaring results unnoticed and uncured. If Swift were their present-day patient, there would be no inquiry as to the eyes. I know more than one great physician who has crippled and morbidized his own life, and the lives of innumerable patients, by the same prejudice against spectacles which caused most of the disease of Swift. Thousands of patients inherit the same silliness and evade the oculist; other thousands do not obey him and reap their reward; more thousands seek the refracting optician and find their inevitable fate; a still greater number flock to the fashionable and "leading" ophthalmic surgeons and professors, and their endings are yet more pitiful. Soon or late all come under the care of the cunning neurologists, the rest-cure men, the hysteria doctors, the operators, the private and public sanitariums, the asylums, and finally into premature and desired graves. They might have avoided it all, if they had been well advised and

expertly treated by the few men who could have cured or prevented the needless misery. Even Swift, impossible as it was two hundred years ago to secure correction of all his ametropia, might have found at least half-relief. Nearly all could find it now, but not one in a hundred do find it. There are a dozen or two oculists in the civilized world who are relieving several thousand patients a year of Swift's disease, Ménière's disease, and of the diseases of the neurologists and gastrologists, but there are thousands of oculists passing hundreds of thousands of patients through their offices without touching the sources of their migrainous, nervous, and nutritional disorders—blind leaders, verily, of the blind! The few oculists who do know and who do cure, must bear the obloquy and scorn of famelessness and poverty thrust upon them by many who cry, "Exaggeration!" and "the consensus of medical opinion!" Holy Science defend us and our sacred private practices!

**BRIEF BIOGRAPHIC CLINICS UPON
LIVING PATIENTS.**

CHAPTER III.

BRIEF BIOGRAPHIC CLINICS UPON LIVING PATIENTS. ¹

WHEN I published biographic clinics on certain famous dead men, many critics said, and more thought but did not say, that this was "all theory and hearsay." It was neither hearsay or theory, but the objection somewhat eased the minds of the critics and gave them breathing-time. To the call for "facts" many answers have been made by many refractionists. The following series of reports is another, each one perhaps representing a hundred, and are epitomes of the case-histories of old or new patients presenting in my office during several weeks. Those only were chosen in which the ametropia of the patients had been diagnosed by other oculists prior to coming to me.

Each case is just as much and as accurately a biographic clinic as would be the records of a whole life, because once a patient has been shown by experiment upon his own body that correct refraction frees from these sufferings, there is not likely to be any lapse or relapse to old conditions. Medicine is empiricism, almost pure and simple, *i.e.*, induction, and all true science is induction. In medicine the test is the therapeutic

¹*Medical Standard*, 1907.

test. If other glasses failed to cure, and these did cure, it follows that when in the future, owing to natural ocular changes, the symptoms recur and are not again relieved the patient will seek until he finds the relief which is possible. A standard has been set up which will ensure him a future life free from the ills he once endured. The old patients have their biographic clinic behind them, while that of the young ones will consist of a brief statement that, except for a little while, it was luckily avoided. Happiness has a history of extreme brevity.

The world, especially the lay world, but rapidly also the medical part, is at last becoming thoroughly aroused and convinced that a vast deal of its suffering, and of its functional systemic disease, is due to eyestrain. The absorbing interest centers about the crux of the whole matter—the right correction of ametropia. The all-dominating reason for the delay in the reform, for the nonacknowledgment of the truth, is that, as a profession, our refraction-work has not been correctly done. Avarice, desire for success, overexaggeration of surgery, blunderfulness, wild theories of tenotonomania, ophthalmometers etc., lack of standardization of methods of diagnosis—*i.e.*, lack of a simple good refraction school—all these things and more have usually made our diagnoses of errors of refraction and our spectacles, utter and amazing farces. Ophthalmology, long vaunted as the most exact of medical sciences, is in truth the most ludicrously inexact. I risk much nonpertinent and pettifogging criticism in reporting these cases illustrating

some of the errors which in a few weeks I have noticed. Every good refractionist could testify in the same way. But such good refractionists are not the "leaders," professors, and success-hunters. Precisely these men are the very worst refractionists. For example:

1. From a distant state a woman of 50 came to me whose life had been one of great and almost constant suffering, especially from headaches and sick headaches. "My life has been spoiled by these headaches." In childhood days they began, and with vomiting. Morphine has been constantly required to allay the agony. Between these crises there have been dull headaches most all the time. Indigestion, flatulence, and constipation have been added in the last ten years, and in the last two years dizziness has appeared. She had been treated by the best physicians of her neighborhood, and latterly by the most famous consultant and authority in several adjacent states. The treatment was for "kidney disease."

Within the last years there have been swellings and abnormal skin-changes of parts of the body, mental obfuscation and slowness of speech, faulty memory, etc. Vision for some time has been dimming a little, and reading had been impossible for years. "Rheumatism" has bothered her since 12 years of age. Several oculists had tested her eyes, the last prescription being: B. E. + sph. 1.75 + Cyl. 0.50 ax. 90°, but her axes are 83° and 100°, a difference alone and without others which would cause the greatest eyestrain, especially in misfitting glasses.

But after all this had been allowed for, I was unsatisfied. The duty to find eyestrain if it exists is no greater than to find the independent systemic disease. The duty to be "an eyestrain crank" is not greater than the duty not to be one. Since my college days I had not seen a case of myxedema. It struck me that this woman's essential disease, produced or not by eyestrain, was myxedema. I asked a competent general physician to make a diagnosis, and after thorough tests this disease was demonstrated. And yet the general physicians who did not suspect it and treated the woman for the wrong disease (there was no kidney-trouble) would speak with scorn of refractionists as hobby-riders.

2. In 1902 a married woman 32 years of age consulted me who was then addicted to chloral because of headache which had existed "every day for her whole life." She was what is commonly called "a nervous wreck" from "nervous prostration" or "nervous exhaustion." She was wearing—from an authority:

R. — Sph. 3.00 — Cyl. 1.75 ax. 180°.

L. — Sph. 3.00 — Cyl. 1.75 ax. 10°.

Besides this she had "fronts," 6° prism, each eye, bases in.

I found her static errors of refraction:

R. — Sph. 3.50 — Cyl. 0.75 ax. 180° = 20/30?

L. — Sph. 2.50 — Cyl. 2.00 ax. 5° = 20/30?

It is thus plain that the physician's glasses were making her eyestrain worse than none at all. She had

indeed 12° of exophoria, but prisms worn constantly for this lack of adduction-power also increase Nature's difficulty and prevent cure. I ran this woman's adduction power up to 110° , and as the adduction-power grew I demanded the decrease of the chloral, until in a few months it was stopped altogether. At this time all suffering had ceased, and has not returned since. The last glasses ordered were in January, 1907, and were as follows:

$$\left. \begin{array}{l} \text{L. -Sph. } 2.62 - \text{Cyl. } 1.87 \text{ ax. } 10^{\circ} = 20/30 + \\ \text{R. -Sph. } 3.37 - \text{Cyl. } 1.25 \text{ ax. } 170^{\circ} = 20/30 + \end{array} \right\} 20/25$$

+Sph. 0.87 added for near in bifocals.

3. A famous authority in ophthalmology, a writer of great text-books, gave a man 46 years old, for reading purposes:

$$\begin{array}{l} \text{R. +Sph. } 0.50 + \text{Cyl. } 0.50 \text{ ax. } 90^{\circ}. \\ \text{L. +Sph. } 0.50 + \text{Cyl. } 0.25 \text{ ax. } 90^{\circ}. \end{array}$$

These did not afford any relief of headaches, sleepiness, and burning and fatigue of the eyes. Because such relief could only result from wearing:

$$\begin{array}{l} \text{R. +Sph. } 2.25 + \text{Cyl. } 0.25 \text{ ax. } 70^{\circ}. \\ \text{L. +Sph. } 2.00 + \text{Cyl. } 0.25 \text{ ax. } 10^{\circ}. \end{array}$$

If the "little men" would stop imitating the "big men," and would learn (by desiring) to neutralize eyestrain, the big men would lose all their patients, and big would become little, while the little would grow big.

4. In 1904 a woman from Ohio consulted me and gave so long a list of severe and curious symptoms that

one at first thought of imagined diseases. I soon became convinced that there was not the slightest exaggeration or pleasure influencing her in her accounts. Among the chief were utter inability to read, etc., without intense nausea; pain for many years in occiput, extending thence to right arm and leg, with numbness of finger and finally of feet; indigestion, flatulence, constipation; rheumatism for 3 years; tender spots in spine and at base of brain; has always had sick headaches, especially when traveling. The chief complaint was of almost constant nausea. She has had glasses for 8 years from various oculists, without relief, the last worn when she came to me being:

R. + Cyl. 1.25 ax. 90°.

L. + Cyl. 0.25 ax. 75°

A radical change in the glasses brought betterment, but a second was required before all the symptoms disappeared. The errors in December, 1905, were:

R. + Sph. 0.25 + Cyl. 0.37 ax. 55°.	} Distance
L. + Sph. 0.25 + Cyl. 0.37 ax. 55°	
B. E. + Sph. 1.00 added. Near	
Bifocals	

5. In 1890, a man of 30 years of age came to me "almost a wreck," from nearly continual "dizziness." He has sometimes as many as 40 or 50 attacks a day, especially in walking, and has been unable to look up or down without bringing on an attack. He also had most typical and extreme agoraphobia, or inability to go in open squares or places, with giddiness and suffering.

Ten years previously he began having glycosuria, and had suffered with it ever since. I at once sent him to a good general physician, who found the percentage of sugar in his urine high, and put him on strict diet, etc. He was wearing from Professor ———:

R. — Cyl. 0.75 ax. 90°.

L. — Sph. 1.00 + Cyl. 3.50 ax. 120°.

I made radical changes in his glasses and had frequently to modify my findings in subsequent years, until the error of refraction became more uniform. In 1891, no more "dizzy spells" were occurring, and he pronounced himself "a new man." In 1890, he tired of dieting and began to eat everything he wanted and has done so since. Agoraphobia had also disappeared. He is an obstinate and self-willed man and would not allow unrinalyses made. In 1904 one showed a low percentage of sugar, but the man is now apparently healthy and is working every day full time as a printer. His last refraction was:

R. — Sph. 2.00 — Cyl. 0.75 ax. 90° = 20/20 +

L. — Sph. 2.75 — Cyl. 6.50 ax. 120° = 20/20 —

6. From a physician a boy of 7 years of age was wearing B. E. + Sph. 1.00. The right eye was strabismic, with less than one-half vision, and evidently going out of use. With proper glasses the right eye came into function, and its acuteness began increasing. The last glasses ordered were:

R. + Sph. 4.00 + Cyl. 1.50 ax. $105^{\circ} = 20/30$
 L. + Sph. 4.50 + Cyl. 1.50 ax. $75^{\circ} = 20/20 +$

7. In 1903, a man of 50 years of age came to me wearing for reading only, B. E. + Sph. 2.00. His single complaint, to use his own words, was "thumping in the back of his head." It disappeared upon wearing:

R. - Sph. 0.25 - Cyl. 0.62 ax. 90° } Distance
 L. - Cyl. 0.75 ax. 90° }
 R. and L. + Sph. 1.75 added for near
 Bifocals.

8. In 1893, a woman of 20 came to me complaining chiefly of great "aching of the face," not particularly to be located, and also of "sickness of the stomach." Both symptoms had been severe, existing most of the time, and as far back as she could remember in childhood. She had been reduced in flesh with other concomitant symptoms. I could not learn the figures of the glasses she had tried from other oculists without relief. I ordered:

R. + Sph. 1.50 + Cyl. 1.00 ax. 65° .
 L. + Sph. 1.00 + Cyl. 0.25 ax. 115° .

The gastric distress and the faceache immediately disappeared and in four months she had gained 22 lbs. in weight.

9. "Neuralgic pain in the temples" was the chief complaint of a young man who had been wearing glasses prescribed by two of our most prominent professors of ophthalmology. The last glasses were as follows:

R. + Cyl. 0.25 ax. 90°.

L. - Sph. 2.50.

The man finally found complete relief by:

L. - Sph. 1.75 - Cyl. 2.50 ax. 70°.

R. + Cyl. 0.50 ax. 90°.

10. A little boy of 3 years of age was ordered to wear a blinder over the left eye for internal strabismus of the right eye by the ophthalmic surgeon of a great hospital, but no glasses were ordered. Of course, the defect was not remedied, nor could it ever have been cured without correction of the ametropia. At present, after proper glasses have been worn for a few years, the lad has perfect and equal acuteness of vision with each eye, and with his spectacles had no squint. The last correction was:

R. + Sph. 1.25 + Cyl. 0.75 ax. 90°.

L. + Sph. 1.00 + Cyl. 0.50 ax. 90°.

11. Thirteen years ago, a man of 33 had been having great gastric distress and headaches when he did not wear a blinder over the right eye. With the blinder he was comparatively free from the troubles. I found binocular vision was not possible. He had so great exophoria and hyperphoria that the possibility of fusion had long been renounced. He was wearing:

R. + Cyl. 0.50 ax. 90°.

L. + Cyl. 0.75 ax. 120°.

With prisms 3° each eye, bases in.

So long as fusion was entirely out of the question, one

wonders why the previous oculist added the prisms. The right eye was going out of use, its acuteness being only about 20/50. The headaches and severe gastric distress at once disappeared, and have not recurred, by wearing:

R. +Cyl. 0.50 ax. 100°.

L. +Cyl. 0.62 ax. 100°.

There is no binocular vision, of course, but the right eye is preserving all the visual acuteness not lost when first seen by me; there is no use of the hideous blinder, and the man is healthy and happy.

12. Over three years ago, a physician's wife, aged 33, consulted me for the most severe and "typical migraine" (if there is such a disease, and if any case of disease is typical), coming on 4 years previously, the violent seizures recently recurring several times a week, and lasting about 24 hours. The excruciating pain began in the right temple, the vein there becoming enormously distended. The vomiting was so violent that the patient "became purple" in the face and especially about the eyes. The woman had been under the care of "the best oculists" during the previous attacks, and good medical skill had done for her all that seemed possible. The disease was uninfluenced by all glasses and by any treatment.

The great mistake made by one of the oculists was to put the eyes, as a test, for a week or two under continuous cycloplegia. He failed to recognize that there may be a habit of disease, which cannot be broken up suddenly.

Because a short test did not stop the outbreaks he concluded the "migraine" was not in this case of ocular origin. The glasses that had been ordered were only approximately correct, but eye-glasses were allowed, and even these were not worn constantly, and no difference was made between distance and near corrections. Under proper glasses the attacks soon ceased and have not recurred since, perfect health having been uninterrupted. Compare Osler and all the text-books on nervous diseases.

13. From Dr. ———, of New York City, Miss S., aged 45, in 1899, came to me, wearing ludicrously wrong glasses:

R. + Cyl. 1.75 ax. $130^{\circ} = 20/60$.

L. + Cyl. 1.25 ax. $30^{\circ} = 20/50$.

She had been long having headaches every week, lasting a day or two, beginning in the forehead, extending to the occiput, pains in the eyes, etc., but the most unendurable symptom was twitching of the right eyelid and muscles of the right side of the face. Out of deference to the neurologists, I should not mention the word chorea. In a few months the headaches and the "pseudochorea" had entirely vanished and have never recurred. The last correction in 1906 was:

R. + Sph. 0.87 + Cyl. 3.25 ax. 30° .

L. + Sph. 0.62 + Cyl. 2.50 ax. 150°

And for near work proper sphericals added.

14. Another example of erroneous prognosis, with a cynic wandering about for many years since making

light of the "science" of medical men, is this: A woman of 40 consulted the chief surgeons of the United States concerning her exophthalmic goiter. Most advised operation, because the great European authorities so advised. The woman would not consent, but posted off to see the greatest of authorities in Europe. He at once demanded operation. She refused, and before leaving the hotel she received an urgent letter from the surgeon, pleading earnestly that to save her life she would consent to operation. She never was operated upon, and to-day is well.

15. The dangers of making definite and fatal prognoses, while at the same time not prescribing the glasses needed to correct ametropia, are indicated by the case of Mrs. A. L. M., who in the last 40 years has consulted about every oculist of repute in Eastern cities. "All differed greatly in their diagnoses and prognoses"—(the woman from much experience with us was very expert in ophthalmologic matters), some saying "glaucoma," others "hemorrhage," etc. The great Dr. ——— told her many years ago she would not go quite blind, but could never read much; the famous Professor ———, 21 years ago, told her she would go blind; in 1889, Professor ——— told her she had Bright's disease, and looked most solemn; Dr. ———, of ———, and Dr. ———, of ———, ordered glasses she could not wear. At the age of 70 this woman has absolutely perfect 20-foot vision with each eye, and has not a sign of ocular disease. She has long been wearing such glasses as these:

R. +Sph. 1.25 +Cyl. 0.25 ax. 155°	}	Distance
L. +Sph. 1.25 +Cyl. 0.62 ax. 145°		
R. +Sph. 3.75 and Cyl.	}	Near
L. +Sph. 3.75 and Cyl.		
Bifocals.		

16. In 1901, a woman of 45 had been given reading glasses (none for distance) by a prominent oculist of a city in New York State, as follows:

R. +Sph. 1.00 +Cyl. 0.37 ax. 90°.
L. +Sph. 1.25.

What the woman needed was:

R. +Sph. 0.25 +Cyl. 0.37 ax. 75°	}	Distance
L. +Sph. 0.37 +Cyl. 0.50 ax. 140°		
R. +Sph. 1.50 and Cyl.	}	Near work
L. +Sph. 1.50 and Cyl.		
Bifocals.		

Besides other symptoms, this woman, for 30 years, had suffered from asthma. Since then this patient has had no asthma until in 1904 albuminurea appeared, and for a time there was some recurrence of asthmatic attacks.

17. One of our leading ophthalmic surgeons was consulted two years ago by a young man, 17 years old, who some six months previously had been struck in the right eye by a ball. The injured eye had shown no symptoms of trouble during six months, but its vision now became blurred. The retina was peculiarly streaked and pigmented, and the professor jumped to the conclu-

sion that traumatic retinitis, etc., was in progress, and calmly informed the patient that the eye could not be saved. The patient consulted another oculist, who found that each eye had perfect acuteness of vision, after correction of ametropia. He also found iritis of the right eye in progress and the disease ran its usual course with perfect recovery.

The nature of the ametropia made it clear that the iritis had little or no relation to the blow from a ball six months before. And it proved that if the patient had been more trustful he might have lost his eye from neglected iritis or his health from uncorrected ametropia and curvature of the spine. I found that the following terrible error of refraction had been wholly neglected:

R. +Sph. 3.25 +Cyl. 0.50 ax. 90° = 20/20 +

L. +Sph. 2.25 +Cyl. 0.25 ax. 75° = 20/20 +

There was head-tilting, spinal curvature resulting from the peculiar axis of astigmatism in the dominant eye, which was the left, because the higher error in the right eye had turned the right-handed man into a left-eyed man. Dr. H. Augustus Wilson took charge of the spinal deformity, and under his skilled treatment, aided by the glasses I had ordered, he reported that the curvature had disappeared, and also a number of morbid symptoms objective and subjective. A beneficent revolution took place in the man's intellect, physiognomy, and poise.

18. In November, 1904, a woman of 45 came to me

complaining of dizziness, languor, pain beneath the shoulder-blade, etc. All through her life up to recently she had great nausea and anorexia. For the past ten years she has worn glasses only, for near work, prescribed by her local oculist—but with no relief of the symptoms. The blundering stupidity of the old ophthalmology is shown in these glasses: B. E. + Sph. 2.00, for near work only. Her errors of refraction diagnosed by mean of cycloplegia are:

R. + Sph. 1.25 + Cyl. 0.37 ax. 165°.

L. + Sph. 1.50 + Cyl. 0.25 ax. 165°.

Even before finding these astigmatic axes I had noted head-tilting, and even as a girl everybody had recognized the fact. Of course the spinal curves were found, for there cannot be these axes of astigmatism without the resultant spinal curvature. Sph. +0.87 and 1.12 with cylinders, for distance, and 2.50 and 2.75 and cylinders, in bifocals, at once relieved the pain in the back, the dizziness, etc.

19. One of Philadelphia's most successful oculists within a few years has ordered for a woman of 32 the following:

- (1) R. - Sph. 0.25 - Cyl. 1.25 ax. 15°.
L. + Sph. 0.25 - Cyl. 1.25 ax. 175°.
with + Sph. 1.00 added for near work.
- (2) R. + Sph. 0.25 - Cyl. 1.50 ax. 15°
L. + Sph. 0.50 - Cyl. 1.25 ax. 175°.
with + Sph. 0.25 added for near.

- (3) R. —Cyl. 1.50 ax. 15°.
 L. +Sph. 0.25 —Cyl. 1.25 ax. 175°
 with + Sph. 1.00 added for near.
- (4) R. —Cyl. 1.50 ax. 15°.
 L. +Sph. 0.50 —Cyl. 1.25 ax. 170°.
 with + Sph. 1.00 added for near.

The list of this woman's symptoms would tire the reader, but headaches, biliousness, etc., were in the catalogue. Her true correction was:

R. —Sph. 0.37 +Cyl. 0.75 ax. 105°.
 L. —Sph. 0.25 +Cyl. 1.00 ax. 90°

Of course, she was a head-tilter, had spinal trouble, etc. But what should be done with the blunderer who ordered high myopic cylinders for the reverse sort of error? Is it not time to establish a school of refraction?

20. A young woman came to me complaining chiefly of dizziness and headaches. She was wearing—

R. +Sph. 3.00 +Cyl. 0.50 ax. 90°
 L. +Sph. 2.75 +Cyl. 0.50 ax. 180°.

The prescriber forgot to make any deduction from the mydriatic error of refraction, a mistake that is strangely common, and very expensive—to the patient. The prescription was really for the full error of refraction estimated under cycloplegia. Had 0.75 been deducted from the spherical, the patient would have been relieved of her symptoms without changing oculists.

21. A woman, 38, complaining of epiphora, headache, constipation, great "nervousness" and irritability,

came to me in 1904 wearing B. E. + Sph. 6.50, with +Sph. 1.00 D. added for near-work. Her symptoms disappeared with the following correction:

B. E. + Sph. 6.50 + Cyl. 0.50 ax. 90°. Distance.
Bifocals.
B. E. + Sph. 6.50 + Cyl. 0.50 ax. 90°. Reading.
Bifocals.

22. A woman 28 years of age came to me in 1899 complaining of headache and failing vision, especially of the right eye. From "a good oculist" she was wearing—

R. + Sph. 4.50 + Cyl. 1.00 ax. 45°.
L. + Sph. 4.50 + Cyl. 1.50 ax. 135°

But her full (mydriatic) correction at this time was—

R. + Sph. 8.00 + Cyl. 1.00 ax. 25° = 20/50.
L. + Sph. 7.50 + Cyl. 1.00 ax. 155° = 20/50.

After several slight changes of glasses in subsequent years, I finally secured 20/20 vision with each eye, and complete relief of the subjective symptoms.

23. In a case of "typical migraine" in a lad of twelve years of age, I was at my wits' ends to bring permanent relief by glasses, although preaching the doctrine that the disease is due to eyestrain. I had failed, at first, to find the correct axes of astigmatism, because I had not then discovered the influence of tilted head, spinal curvature, etc. There was temporary relief a second time from axes 70° both eyes. But the headaches and vomitings returned. Finally I found the boy had subnormal accommodation and bifocal glasses made an end of the

disease, "the nature of which is unknown." If the poor boy had got into the hands of the neurologists his life would have been speedily and absolutely wrecked.

24. A man of 34 had suffered from "typical migraine," if there is such a disease, most of his life. The nausea, headaches, and vomiting were "becoming unbearable." He had been wearing glasses from a successful "ophthalmic surgeon" for the last 13 or 14 years, with no relief of the headache and sick headache. The last glasses were the same for each eye, viz.: —Sph. 3.75 — Cyl. 0.75 ax. 90°. His static error of refraction was found to be

R. —Sph. 2.75 —Cyl. 1.50 ax. 95°.

L. —Sph. 3.00 —Cyl. 2.00 ax. 85°.

The lenses were ordered full strength for distance, and for near work, others less strong by 0.62 Sph. The man has not had a headache or any vomiting attacks since wearing this correction. Overcorrection of myopia, with inaccurate correction of astigmatism and anisometropia, are the sources of the sufferings of a multitude of patients, the "success" of their oculists, the hatred of eyestrain exaggerators, and the reason that "the nature of migraine is unknown" by "neurologists" and "ophthalmologists."

25. In 1903, a woman of 34 consulted a famous professor of ophthalmology, a writer of great text-books, and consorter with boss-politicians; by him was ordered—

R. +Sph. 1.00 +Cyl. 0.50 ax. 75°

L. +Sph. 1.00 +Cyl. 0.62 ax. 105°.

She has long had "nervous dyspepsia," indigestion, general weakness and invalidism, with depression of spirits, throbbing in temples, etc. Reading, writing, sewing, etc., bring on the symptoms; stopping cures them. The professorial glasses did not help her because the following were required:

R. +Sph. 2.50 +Cyl. 0.62 ax. 75°, Prism 3°

Base up.

L. +Sph. 2.50 +Cyl. 0.62 ax. 115°, Prism 3°

Base down.

There was also subnormal accommodation, and +Sph. 1.50 in "films" were required in bifocal spectacles. She is now a happy woman, and is not any longer worried by the dreaded inheritance of insanity supposedly handed down from intermarrying cousins. The "eyes-examined-free" optician could have done better than the great specialist.

26. A woman of 25 came to me unrelieved of frontal headache, indigestion, pain in eyes, etc., by +Sph. 0.50 both eyes, worn for five years. In order to get relief of the symptoms she needed—

R. -Sph. 0.87 +Cyl. 1.50 ax. 95°.	} Distance.
L. -Cyl. 1.25 ax. 180°.	
R. +Cyl. 1.50 ax. 95°.	} For near work.
L. +Sph. 0.87 -Cyl. 1.25 ax. 180°.	

The +Sph. 0.50 were far less helpful than would have been the ministrations of Mrs. Eddy.

27. About a month before coming to me Mr. A. B., aged 57, had been ordered by a neighboring oculist—

R. + Cyl. 1.25 ax. 180°.	}	Distance.
L. + Cyl. 2.50 ax. 180°.		
B. E. + Sph. 2.50 added.		Bifocals. Near.

The man had had headaches and “liver trouble” all his life. The lack of any glasses and the wearing of such incorrect ones as the foregoing prescription commands have been the causes of his fifty or more years of suffering. What he has needed is the following:

R. + Sph. 0.75 + Cyl. 0.87 ax. 180°.	}	Distance.
L. + Sph. 0.25 + Cyl. 2.50 ax. 180°.		
R. + Sph. 325 and cylinder.	}	Near.
L. + Sph. 225 and cylinder.		
Bifocals.		

The first prescription illustrates a common error besides the inaccuracy of the distance glasses and the failure to estimate the astigmatism rightly. When the inaccurate diagnosis of the hyperopia is mechanically carried over to the estimate of the presbyopia, the presbyopic correction of the right eye is insufficient.

28. A physician of one of the Southern States, aged 36, was examined about three years ago by one of the best-known professors of ophthalmology in the South, who advised tenotomy—for orthophoria! This was refused. He also advised if operation was not permitted that prism-exercises should be undertaken—for orthophoria! He also advised for both eyes (without cyclo-

plegia!) + Sph. 0.50, saying that there was "not enough astigmatism to make trouble." A New York City oculist subsequently advised B. E. + Sph. 1.00, and another of St. Louis ordered B. E. + Sph. 0.75. For eight or ten years this physician has suffered from sick headaches, with vomiting. He still had them when he consulted me recently, and, as he had not consented to tenotomies, he still had his orthophoria. I ordered:

R. + Sph. 0.25 + Cyl. 0.50 ax. $162\frac{1}{2}^{\circ}$.

L. + Sph. 0.37 + Cyl. 0.25 ax. 20° .

The patient was immediately cured of his "migraine." Tenotomy for orthophoria, overcorrection of hyperopia, no correction of anisometropia, unsymmetric astigmatism, is malpractice, and even more surely if advised by famous and erudite ophthalmic surgeons.

29. Three years ago, a woman 27 years old was sent to me by a general physician of Philadelphia. She had about all the diseases, according to the reports of herself and many physicians, which are possible in a single organism at one time. She had worn glasses, unrelieved of her multiform sufferings, for nine years. The chief symptoms had been headaches, of all kinds, but particularly extending from the left temple to the occiput, and thence to the neck, with nausea. These attacks lasted sometimes as long as two weeks without ceasing. The shorter ones occurred about twice a week, especially if she did any reading, writing, or sewing. Besides these, there have been "nervous attacks," followed by "col-

lapses," coming on suddenly, with great pain and "cramps" about the waist-line, with vomiting. Some years ago there were operations for floating kidney, Bright's disease, etc. Many other symptoms might be listed. I found that she was wearing both eyes, +Sph. 0.50. I ordered:

R. +Sph. 0.12 +Cyl. 0.37 ax. 90°

L. +Sph. 0.50 +Cyl. 0.25 ax. 90°.

In a month or two every symptom had vanished, and the woman was a well woman in every respect, and has continued so since. When she came to me she weighed 112 pounds and might have posed for a picture of suffering and despair. She soon weighed 168 pounds. I did not at first discover a subnormal accommodation of 1.50 D. which is now worn in bifocals. Astigmatism, "too slight to notice or correct" for the "ophthalmic surgeon," may sometimes mean more than all the world for the patient.

30. Some years ago a teacher, a woman 34 years old, came to me wearing for four years an overcorrection of compound hyperopic astigmatism, and without relief of constant headaches, sick headaches, and poor health generally. Her eyes were still struggling to retain binocular vision under the wrong glasses, and under the enormous resultant difficulties represented by 17° of exophoria, and 6° of hyperphoria. Her abduction was 14°, and adduction 18°. I ordered proper spectacles, and told her that the tenotomies advised, not done,

by the professor, her former oculist, were unnecessary. By prism gymnastics I ran her adduction-power as high as 110° , but usual exercises were carried on with 35° prisms each eye bases out. For several years she has now had perfect muscle-balance (no hyperphoria, and 2° of esophoria) and perfect health, without headache, indigestion, etc.

31. Five years ago, a girl of 14 consulted the most renowned of the oculists of Boston, who prescribed for her—

R. — Sph. 1.75 — Cyl. 1.50 ax. 180° .

L. — Sph. 3.00.

She again consulted him two years ago, and was told that although her astigmatism had lessened she should continue to wear the same lenses, and this she has done. This young woman is the daughter of one of our greatest scholars, and herself needed for her literary work the most accurate correction of her ametropia possible. She has been wearing the above, but her full error is—

R. — Sph. 1.50 — Cyl. 1.12 ax. 180° .

L. — Sph. 2.25 — Cyl. 0.62 ax. 90° .

Not to find the unsymmetric astigmatism of the left eye; to overcorrect the myopia of both eyes; to find astigmatism lessened and not change the lenses—these are ophthalmic sins worthy of “conservatism,” and to be expected in those who ridicule the “eyestrain exaggerator.” A few more years of use of the old glasses and the severe nervous and neuralgic headaches from which the

patient suffered would have resulted in tragedy aplenty for her and for her parents.

32. About a year ago, a prominent oculist brought this daughter, a robust, fine example of womanhood, to me. She had been free from headaches until during the last two years. Since beginning a college course of study she has been having "terrific headaches with vomiting." The records show that as many as eight attempts have been made to estimate the error of refraction, all differing from each other, decidedly, all contradictory and impossible to be correct. The last glasses ordered three months previously were:

R. - Sph. 0.12 + Cyl. 0.37 ax. 180°.

L. - Sph. 0.12 + Cyl. 0.37 ax. 165°

The error was found to be:

R. - Sph. 0.25 + Cyl. 0.87 ax. 180° = 20/30.

L. - Sph. 0.25 + Cyl. 0.62 ax. 180° = 20/30 +.

For many years more disastrous results have been avoided by nonuse of the eyes in near work and by life in the open air most of the time. The increase of amblyopia in a young and healthy person is a danger-signal which should not be ignored. In a recent letter from the father he tells me: "My daughter is wearing the spectacles you ordered constantly, and has no trouble of any kind. She broke a lens and during the two days she was without them she had the headaches as before." This case-history at least teaches that the most needed

thing in ophthalmology and medicine is a serious and thoroughgoing school of refraction.

33. A woman of 32 years of age has suffered most of her life, and increasingly with each later year, from almost constant vertical headache, "bilious attacks," nausea, terrible insomnia, etc. She has worn glasses for about seven years from several oculists, but with no relief. She has been forced to renounce her life-work, in which she was skilled and successful. As early as 1899 she had a high degree of amblyopia, the record of the glasses ordered at that time being:

R. - Sph. 0.25 - Cyl. 0.50 ax. $60^{\circ} = 6/10 +$
 L. - Sph. 0.75 - Cyl. 0.25 ax. $105^{\circ} = 6/10? ?$

A later prescription by the same oculist reads:

R. - Cyl. 0.50 ax. 60° .
 L. - Sph. 0.25 - Cyl. 0.50 ax. 120°

The last glasses by a New York City ophthalmometric expert neutralize both eyes the same, - Sph. 0.50.

Her proper correction is:

R. - Cyl. 0.50 ax. $45^{\circ} = 20/40$.
 L. - Cyl. 0.62 ax. $90^{\circ} = 20/40?$

with Sph. +1. added for near work because of subnormal accommodation. I at once noticed that the patient tilted her head habitually to one side, and to my inquiry she said she had always done this, and that she was treated for spinal curvature when 15 years of age.

An orthopedic surgeon, Dr. H. Augustus Wilson, was

consulted, who reported "functional scoliosis with localized spots of tenderness in the region of the 8th, 9th, and 10th dorsal vertebrae, flabby spinal muscles, etc. There is no organic lesion." "Spinal gymnastics," Dr. Wilson thought, "applied with great care, should bring about restoration of the normal spinal function. I agree with you that she must not go on with her teaching for a year."

The arrangement was made for the carrying out of the suggested treatment, when like a flash the patient was whisked off to the neurologist, who said, "neurasthenia and rest-cure; she has no back-trouble; no local treatment can be of value until the nervous system has been built up so that there is something to work upon." All of which was idiotic and atrocious, of course, but to be expected of modern "neurology."

There are 15 or 20 million American patients with lateral curvature, an indefinite but large proportion of whom are being "rest-cured" and invalidated and surgicalized to an undeserved death. The orthopedists ignore them, do not treat or mistreat them; the hysteria doctors amuse them, and get amusement for themselves in doing so; the neurologists take their money for naming or misnaming their disease; the gynecologists take their ovaries, and often more; the general surgeon takes at least their appendices; the ophthalmic surgeons give them wrong glasses or snip their innocent muscles; the epileptic experts and the sanitariums herd them; the world endures them; the medical profession generally is heartily

tired of them. In the meantime, osteopathy, mechanoneuralism, eddyism, and a hundred other fraud-follies grow fat and laugh at us.

34. A patient, a man of 43, had been wearing glasses for about 20 years, from many oculists, but without relief of his symptoms, which destroyed his happiness and incapacitated him for business. His most tormenting symptoms were headache on reading or writing, tiredness of eyes and head, drowsiness, or if near work is persisted in, insomnia at night. At times there is severe indigestion, gastric pain, flatulence, hyperacidity, etc. The left externus had been tenotomized in previous years. He has long been compelled to disuse one eye by a blinder, which device helps him to read longer than without it. I have no record of the glasses of many years ago, but in 1903 he was ordered:

R. -Sph. 0.50 +Cyl. 0.75 ax. 55°
 L. -Sph. 0.25 +Cyl. 0.37 ax. 120°.
 B. E. +Sph. 0.50 added for near in "fronts."

A later correction by another read:

R. -Sph. 0.25 +Cyl. 0.87 ax. 45°
 L. +Cyl. 0.37 ax. 105°
 Distance.
 R. Prism 2° Base in,
 L. Prism 4° Base in,
 Added for near work.

The patient complained that most of the previous oculists had kept from him their diagnosis, prescriptions,

etc., and had "dealt in mystery" to a ridiculous degree. I ordered:

R. - Sph. 0.12 + Cyl. 0.87 ax. 45°

L. + Cyl. 0.50 ax. 125°

Distance.

R. + Sph. 0.62 and Cyl.

L. + Sph. 0.75 and Cyl.

Near.

Bifocals.

In a few months he wrote: "Perfect satisfaction with my glasses; use eyes more freely than in several years; often read in evening two hours without the headache that used to follow."

35. A young business man had long suffered from frontal headache, nausea, drowsiness, inability to study, frequent attacks of indigestion not explainable by imprudence in diet, "nervousness," and restlessness, "rheumatism" in right shoulder, etc. He had, last spring, typhoid fever, and appendicitis last summer. He has been tormented with frequent "colds." His oculist, one month prior to coming to me, had ordered +Cyl. 0.25 ax. 90° in both eyes, but these gave no relief. Why? His total error of refraction was:

R. + Sph. 0.62 + Cyl. 0.50 ax. 90°.

L. + Sph. 0.62 + Cyl. 0.37 ax. 90°.

Correct lenses at once cured him of all symptoms, and he now has no ill health whatever.

36. A woman of 43 years of age was ordered to wear, for distant, or out-of-door vision, only, the following

correction, by a famous ophthalmic surgeon of a distant city:

Both eyes—Cyl. 0.25 ax. 180°.

She had three tenotomies, resultless, so far as concerns any relief of her symptoms. For the last two years she has been ordered to wear a blinder over the right eye all the time while at home, and has done so. She has had great and constant pain in the back of her neck and in the spine, and in the last year glycosuria, with other troublesome diseases, have followed. And no wonder that a blinder was necessary and that operations gave no relief, and that various diseases ensued, for her uncorrected, miscorrected, error of refraction was:

R. —Sph. 0.50 —Cyl. 0.62 ax. 90°,

L. —Sph. 0.37 —Cyl. 0.50 ax. 90°,

and she had need of 1 D. + Sph. added, in bifocals, for near work.

Blinders, operations, tenotomomania, and “conservatism” are powerless to cure without correction of ametropia. And that diabetes may be due to eye-strain is the height of absurdity, except to the “New” ophthalmologists.

37. About eight years ago, a business man, then aged 25, began having attacks of “indigestion” with “terrific pains in the stomach.” He had had obstinate constipation all his life. He had to carry medicine with him to take whenever the attacks of pain and indigestion came on. On July 30, 1906, he swooned, and had to be

taken home in a carriage. These fainting attacks came on daily for a while, and then there were one or two each week for several months. In December, 1906, there was a sudden blurring of the right eye noticed on arising one morning. An oculist was consulted, who pronounced the disease glaucoma, used eserin, and advised operation. This was refused, and another oculist was consulted in another city, who also diagnosed glaucoma and again advised operation. Three days passed and a third oculist in another city was called in, who "laughed at the idea of glaucoma," and "pronounced the disease iritis." When a letter from oculist No. 3 was delivered to oculist No. 1, the latter said, "Yes, you have iritis; your eye has changed entirely in 24 hours." But no atropin was ordered, and two days more passed. Thus eserin had been used for six days before atropin was ordered, followed by puncture of the anterior chamber. If something had to be punctured why did he not choose the man's heart, or the posterior chamber of the eye?

In the desperate attempt to ignore causes, the chirurgi-comaniac does funny things—funny for "Science" if not for the patient-world. A month of atropin-instillations brought no improvement, and oculist No. 4 said, "there had been bad neglect;" he advised "waiting and seeing what nature would do." Oculist No. 5, myself, found old iritic adhesions, which I finally succeeded in breaking for the most part, capsular discoloration, etc., and heavy vitreous opacities. My reason for reporting these details is that prior to the attack of iritis,

during the period when the swoonings were in progress, oculist No. 1 had ordered glasses alike in both eyes, —Cyl. 0.50 ax. 90°. What he should have ordered was:

R. —Sph. 0.25 —Cyl. 0.87 ax. 180°.

L. +Sph. 0.75 —Cyl. 1.37 ax. 180°.

These at once gave the patient relief, and he now “feels like a different man since the change of glasses.” He has not had any swooning or fainting since getting the glasses. There can be no doubt that this patient’s constipation, indigestion, gastric pain, swoonings, and iritis were due to eyestrain at first uncorrected and then increased by bad correction; the inability to estimate the ametropia was caused by the nonexistence of a refraction school; the inability of two oculists to differentiate between glaucoma and iritis was due to the worthlessness of the instruction in another kind of ophthalmic school and clinic.

38. A patient, a woman of 39, suffering from supra-orbital pain, nausea, insomnia, dyspepsia, and constipation, consulted a famous ophthalmic surgeon who has a long, long string of visiting-surgeon tails to his name. He ordered:

R. —Sph. 0.37 +Cyl. 0.75 ax. 45°

L. +Sph. 0.75 +Cyl. 0.62 ax. 135°

He lost his patient because the proper prescription should have read:

R. +Sph. 0.25 +Cyl. 1.62 ax. 15°.

L. +Sph. 0.25 +Cyl. 1.37 ax. 165°.

The first lenses could only have increased the severity of the patient's already unendurable symptoms. There is naturally rancor in the heart of the ophthalmologist-to-20 hospitals against the eyestrain exaggerator.

39. One year ago a New York worshiper of the ophthalmometer and a violent hater of all eyestrain theories and cranks, gave a patient a pair of lenses, each alike, +Sph. 1.50. This patient had frontal and occipital headaches, with other irritating and painful symptoms, was indeed "threatened with nervous prostration," so that "a six months' trip" was ordered. But the symptoms came back when the patient returned to work. Under a mydriatic I found:

R. +Sph. 2.25 +Cyl. 0.37 ax. 90°.

L. +Sph. 1.62 +Cyl. 0.75 ax. 105°

The man who prescribed, B. E., +Sph. 1.50, was a great leader, text-book maker, politician, ruler of hospitals, medical societies, scorner of eyestrain hobby-riders—in fact, a public denier that ocular malfunction can produce any systemic disease whatever. The ophthalmometer is a god who destroys his most abject worshipers.

40. A woman 46 years of age, complaining of flatulent dyspepsia, constipation, epigastric pain, shoulder-pain, neuralgia of the head with crises incapacitating her for one or two weeks at a time, was told by an oculist of a neighboring city that she needed no reading glasses. He was told that the patient was 46 years old. She had 3 D. of astigmatism, and amblyopia from incorrect

glasses of 20/40. The modern ophthalmologist, even while scorning the refractionist, should care and be able to diagnose presbyopia.

41. A few years ago, a woman consulted a physician of a Southern city, "who is considered the best oculist in the city." He told her at once, "of course, you do not need glasses! Your eyes are more than perfect." He did not use a mydriatic, and simply proved that for an instant she had 20/20 visual acuteness. This woman "has never been well for a week," her complaints being many—nausea, dyspepsia, drowsiness, inability to see, irritability, intense nervousness, etc. Her full error of refraction is:

R. + Sph. 2.50 + Cyl. 0.25 ax. 35°.

L. + Sph. 2.25 + Cyl. 0.50 ax. 145°.

Will there ever come an end of medieval ophthalmology?

42. Some 14 years ago, an old and famous oculist of a Western city, a professor of ophthalmology, told a woman she did not need glasses. Since then she had frontal, temporal, and sick headaches, very poor digestion, insomnia, and blepharitis. I found the following refraction error:

R. + Sph. 1.75 + Cyl. 0.25 ax. 135° = 20/20.

L. + Sph. 1.62 - Cyl. 0.25 ax. 180° = 20/20.

With this health-wrecking ametropia, there was exophoria, an adduction no greater than abduction, and subnormal accommodation. All headaches, etc., have

since disappeared, although the patient is using the eyes hard in near work. As usual the professor was in error; and because he did not believe that there can be any eyestrain with 20/20 vision. Even now he laughs at the idea that eyestrain can cause any systemic reflex whatever. His colleagues in the medical school think the incumbent of the chair of ophthalmology a scientific gentleman and a most praiseworthy consultant in neurologic and gastric cases.

43. A medical student (in an adjacent state), whose father is a physician, went to the dean of his college asking him to recommend a trustworthy oculist. This was done, and the young man consulted the official scientist, who used no mydriatic, and ordered:

R. — Sph. 2.00 — Cyl. 1.00 ax. 180°.

L. — Sph. 2.25 — Cyl. 0.50 ax. 180°.

No relief of many symptoms, inability to study, etc., followed. I found and ordered:

R. — Sph. 1.50 — Cyl. 0.62 ax. 180°.

L. — Sph. 1.75 — Cyl. 0.50 ax. 155°

A letter soon arrived saying, "I feel as if you had put a new pair of eyes in my head. They never hurt, etc." No use of a mydriatic, overcorrection of myopia, an axis of astigmatism misplaced 20°! The young physicians just starting in general practice are learning many things about modern ophthalmology which the conservatives do not know. And the old ones do not know that the young ones are learning to know.

44. An American lady, aged 52, failing to get relief of severe headaches, nausea, and vomiting from American oculists, went to England and for her money received a prescription reading as follows:

o. D. + Sph. 1.50.

o. S. + Sph. 1.50.

supposedly for near use, only.

Strangely she found no relief, because "nature of migraine is unknown, and is incurable." Finally, one American oculist was found who ordered astigmatic lenses that cured her.

Ex oriente lux!

45. A boy of six had vague symptoms, and the solicitous mother was prevailed upon to consult the famous tenotomist, who proceeded to snip one of the tendons of the eye, or the conjunctiva over it, for which he demanded and was paid \$180. The mother soon recovered her natural astuteness when she found there was no improvement in the boy's symptoms. Observation soon convinced her that a vermifuge might prove of more avail than tenotomy. At once the symptoms vanished. She wrote the great surgeon that she was very angry because of his blunder and cupidity. He replied by courteously asking for a photograph of the boy to put in his forth-coming book as a proof of the marvelous results of tenotomy.

46. A patient consulted an oculist in New York State, who found a focus of conjunctival congestion, a sort of

phlyctenula at the inner corneal border of one eye. Articles had lately appeared in ophthalmic journals praising the treatment of certain (or uncertain) ocular inflammations by intraocular injections. Without consulting the patient, the hypodermic needle was used and some drug inserted in the vitreous chamber of the eyeball. The resultant suffering and increased inflammation gave the patient severe illness and great solicitude. The patient would not return to the surgeon and was afraid to consult other oculists. At last she did so and spectacles correcting the eyestrain soon cured the scleritis, episcleritis, or conjunctivitis.

47. A man of 23 was sent to me by a well-known oculist. The history was that of chronic constipation, intense pain in occiput, eyes bloodshot and uncomfortable, bad feeling in stomach, insomnia, irritability, etc. Oculist A. had ordered, both eyes, +Cyl. 0.50 ax. 180° . Oculist B.: R. +Sph. 0.75 +Cyl. 0.25 ax. 180° , L. +Sph. 0.75. Oculist C.: R. +Sph. 0.75 +Cyl. 0.37. ax. 10° , L +Sph. 0.75 +Cyl. 0.12 ax. 135° , with 0.50 Sph. added for near work. Oculist D.: R. +Sph. 0.25 +Cyl. 0.50 ax. 180° , L. +Sph. 0.50 +Cyl. 0.25 ax. 180° . Oculist E.: R. +Sph. 0.50 +Cyl. 0.37 ax. 180° with prism 0.5° base up; L. +Sph. 0.62 +Cyl. 0.25 ax. 165° .

Upon attempting to estimate the error of refraction I found about 10° of fluctuating esophoria, a head persistently tilting to the right, the right ear much lower than the left (misplacing the spectacle frames), postmydriatic refraction changes, and subnormal accommodation which

required bifocal glasses. There was much improvement noted from the glasses I ordered, but it could not be called "a cure." The patient lived a long distance away, and it was a year or more before I could get him to return. There was then no postmydriatic doubt; there was normal muscle-balance; perfect visual acuity; the head was carried erect; and subnormal accommodation had vanished. The following lenses were ordered:

R. + Sph. 0.50 + Cyl. 0.62 ax. 15°.

L. + Sph. 0.50 + Cyl. 0.25 ax. 155°.

For constant use.

Two months later he wrote: "Much improved; eyes growing stronger every day with use; have now, after years of lost time, resumed my law work; I thank you most sincerely. I can read three hours continuously with little sign of weariness." The tilted head was in this case one of the chief causes of failure.

48. A man, 30 years old, had long been suffering from headache, "practically all the time," sometimes with nausea, with "nervous indigestion," and other "migrainous" symptoms. In the last eight years he has worn spectacles from several prominent oculists in Chicago and New York, but without relief. Although he has perfect muscular balance, he has been ordered gymnastic exercises with prisms. He was wearing from a famous ophthalmologist of Chicago:

R. - Sph. 0.25 + Cyl. 1.00 ax. 35°.

L. + Cyl. 1.00 ax. 145°.

His static error was found to be:

R. + Cyl. 1.25 ax. $30^{\circ} = 20/20$.

L. + Cyl. 1.50 ax. $150^{\circ} = 20/20$.

ordered.

He had previously been "done up" about once a week with his headache and "awful pains in the left eye." He now writes that he has not had a severe headache since wearing the spectacles ordered. One-half diopter of astigmatism uncorrected will often make all the difference between happiness and misery.

THE RELATION OF INCORRECT AND
CORRECT REFRACTION TO SYS-
TEMIC DISEASES.

CHAPTER IV.

THE RELATION OF INCORRECT AND CORRECT REFRACTION TO SYSTEMIC DISEASES.¹

All the theories, conservatisms, and exaggerations as regards the systemic results of eyestrain must give way to the teachings and logic of facts. In its last analysis Medicine is almost entirely empiricism. If the facts are true, if the reports are accurately observed, then they will live and destroy all opposing opinions. Upon clinical demonstration, therefore, must be based the proof or disproof of the theory of the systemic results of eyestrain believed in by so many good physicians. These believers are assured that the chief reason why so many other physicians deny the truth is that the adequately painstaking and skilled diagnosis of errors of refraction has been so generally wanting, and consequently the therapeutic results have not occurred. The doubters, deniers, and flouters have not done good refraction work or they would not doubt, deny, or sneer. They who do the will shall know of the doctrine, holds as well in ophthalmology as in ethics and religion. The reporting of patients cured demonstrates, *per se*, the correct testing,

¹ *American Medicine*, New Series, vol. ii, No. 7, pages 399-407, July, 1907.

proper prescription, and right adjustment of spectacles. Those who say glasses cannot and do not have such effects confess in that their own bad workmanship. Oddly, but necessarily, such deniers with few exceptions are precisely those who are supposed to be the leaders in ophthalmology, the professorial, visiting-surgeon, text-book-making, chairmanship-hunting, "authorities." For a few weeks, as patients came to my office who had passed through the hands of these gentlemen, I took note of the glasses worn, and of who prescribed them, and the following are 50 of the examples found:

1. A man of 50, a famous actor, aged 50, had consulted Prof. A. R., the great English authority, to know if his severe objective vertigo, nausea, etc., might be due to his eyes. He was given a prescription for reading purposes only, simple spherical lenses, alike in each eye, and so strong that he could not see print beyond a few inches from his eyes. He at once discarded them, and also English ophthalmology. The patient, under mydriasis showed:

$$\begin{array}{ll} \text{R.} + \text{Cyl. } 0.25 \text{ ax. } 45^{\circ} & = 20/20 + \\ \text{L.} + \text{Sph. } 0.25 + \text{Cyl. } 0.37 \text{ ax. } 60^{\circ} & = 20/20 + \end{array}$$

Bifocals were ordered, and the giddiness and nausea disappeared.

2. A well-known physician of New York City recently sent his wife to me. Her family physician had waxed very angry because, by the advice of her husband, she had resolved to come to me. He violently contended nothing was the matter with the eyes, and that her symptoms were all due to systemic disease. He ordered some sort of liquid to be rubbed on her hand, then to hold the hands in front of the eyes! How the hysterical doctor stupidly diagnoses hysteria when he cannot cure. The woman's eyes

had lately been refracted by a prominent oculist of her city and she was wearing, when she arrived, this astonishing correction:

R. +Sph. 0.75.

L. +Sph. 0.75 +Cyl. 0.25 ax. 180°.

(*Par nobile fratrum*, this family physician and the oculist!) These glasses were seen by this ophthalmologist four weeks ago, and pronounced by him "exactly right." Previous to this the patient had worn other glasses from a famous professor of ophthalmology in New York City, but without relief. With the last glasses her headaches, etc., have been growing steadily worse, and continuing every day. The pain is worse in the back of the head and neck. Other symptoms existed, such as drowsiness, absent-mindedness, bloodshot eyes, etc. This woman's sufferings could at once have been relieved by:

R. +Cyl. 0.75 ax. 15°.

L. +Cyl. 0.25 ax. 105°.

Why could she not have been able to secure such spectacles in New York City? There are a hundred thousand of such patients there.

3. In 1901, a young woman came to me wearing in both eyes +Sph. 0.75 +Cyl. 0.25 ax. 90°, prescribed by an oculist of a distant city. The girl had been compelled to leave school because of headache and failing health, anorexia, etc. I found she had the following errors:

R. +Sph. 2.50 +Cyl. 0.37 ax. 90°.

L. +Sph. 2.00 +Cyl. 0.50 ax. 90°

But I did not give any relief, and was correspondingly appalled, for two years. Then I learned what a blunderer I had been, because she tilted her head persistently to the right, and her true axis of astigmatism in the right eye was 75°. This led me to the knowledge that the girl had spinal curvature. She soon recovered perfect health and a straight back.

4. A young woman wearing glasses prescribed by an oculist (without drops) had great distress of mind because of tachycardia. The heart action often ran as high (sometimes, according to the patient, higher) as 122 beats a minute, and irregular. The pulse-rate at once became normal under:

R. +Sph. 0.37 +Cyl. 0.50 ax. 110°

L. +Sph. 0.75 +Cyl. 0.75 ax. 80°

For the past year she has had no tachycardia and has enjoyed good health.

5. A Western surgeon, 49 years of age, well known as a text-book maker, operator, and teacher, came to me, having "had at least two dozen different glasses from oculist-colleagues." Some of these were as follows:

1. B. E. +Cyl. 0.75 ax. 90°.

2. R. +Sph. 0.25 -Cyl. 1.00 ax. 165°

L. +Sph. 0.25 -Cyl. 0.75 ax. 180°.

With prism each eye, 0.5°. Bases out.

3. R. +Sph. 0.25 -Cyl. 1.50 ax. 165°, 2° Prism B. O.

L. +Sph. 0.25 -Cyl. 0.75 ax. 180°, 2° Prism B. O.

4. R. -Sph. 0.25 +Cyl. 0.62 ax. 90°

L. -Sph. 0.25 +Cyl. 0.62 ax. 90°.

With 1.75 +Sph. added in right; 1.00 +Sph. added to left, for near work.

Now, if any one of these lenses had been correct the others were incorrect. The fact that the man's severe eyestrain sufferings had continued for a lifetime ("boring headaches," "neurasthenia," "stagnation of liver," "dyspepsia," "bloodshot eyes," "as if a nail were being driven in between the eyes." "sick headaches

since ten years of age, with nausea and vomiting") and had not been cured by any glasses, showed that none were correct. His error of refraction is:

R. + Cyl. 0.37 ax. $45^{\circ} = 20/20?$

L. - Cyl. 0.37 ax. $180^{\circ} = 20/20 +$

With perfect muscular balance and presbyopia 1.50.

He has "not had a sick headache since wearing the glasses I ordered."

6. A woman of 54 came to me in 1905, wearing, both eyes, + Sph. 1.50, for reading. Nothing was ordered for distance. There has been a life of suffering. Formerly she had "regular sick headaches, with vomiting." She has been under treatment for liver trouble, or "torpid liver," nausea, feeling of pressure in the epigastrium, weakness of the limbs, etc. The eyes are often "bloodshot," and watery." I ordered:

R. - Sph. 0.25 - Cyl. 0.50 ax. 90°	} Distance	} Bifocals.
L. - Sph. 0.50 - Cyl. 1.00 ax. 90°		
R. + Sph. 1.75 and Cyl.	} Near	
L. + Sph. 1.50 and Cyl.		

Except slight and occasional indigestion the woman is well. Opera bouffe ophthalmology does not pay—the patient!

7. One of the best-known general practitioners of New York City several months ago sent me a woman of 30, wearing, "from a good oculist:"

R. + Sph. 0.25 + Cyl. 1.50 ax. 90° .

L. + Cyl. 1.50 ax. 90° .

She had been wearing glasses for the last ten years, without relief from excruciating and frequent sick headaches. Reading a little while or riding in a car brings on the headache, so that being compelled to do both she has headache most of the time. She is

compelled to take a nap every afternoon. She has much indigestion, a "burning sensation in the throat," pain in the abdomen simulating appendicitis. She is "frightfully nervous," easily excitable, etc. I ordered:

R. + Cyl. 1.62 ax. 95°.

L. + Cyl. 1.50 ax. 85°.

From the general physician who sent the patient to me I have just received a letter in which he says: "Mrs. S. came to see me a few days ago. All of her troublesome symptoms have disappeared, and she looks and feels splendidly well." In a high degree of astigmatism the location of the axis by as little as 5° is easy, for the careful oculist, and the failure to place it thus accurately may produce the most wretched misery for the patient. That 5° of error may, indeed, wreck a life.

8. A woman, 36 years of age, came to me in 1904 wearing from a reputable oculist of Delaware, +Sph. 2.50 in each eye. She was suffering from frontal headache, "poor vision," bloodshot eyes, and inability to read, especially in the evening, and constipation. A Colorado oculist had recently testified that her poor vision was due to "an insufficient nerve supply." And this was perhaps true, but if so it was because her errors of refraction and accommodation were not corrected. Upon ordering:

R. + Sph. 3.25 + Cyl. 0.37 ax. 90° } Distance.
L. + Sph. 2.75 + Cyl. 0.37 ax. 90° }

R. + Sph. 4.00 and Cyl. } Near.
L. + Sph. 3.50 and Cyl. }

her troubles disappeared.

9. A boy, 10 years old, came to me wearing, from a physician in a neighboring city, both eyes, +Sph. 1.00. When no relief came from their use the oculist rightly told the mother he might as well go without them. The mother and boy cannot remember when he

did not have headaches. Latterly they have been "regular sick headaches" with nausea and vomiting about once a week. He often wakes in the morning with headache. The family physician had inherited some antediluvian twist which made him think the fashionable neurologist could or would solve the mystery of the lad's ill-health. There was, therefore, a visit to one of the most famous of the Philadelphian variety. This man, renowned for erudition, had never heard of eyestrain and, poorer in pocket-book, the afflicted parents took the boy back home with the profound advice, "nothing wrong in my line." The error of refraction needing correction was:

$$\begin{aligned} \text{R.} &+ \text{Sph. } 0.37 + \text{Cyl. } 0.50 \text{ ax. } 90^\circ. \\ \text{L.} &+ \text{Sph. } 0.75 + \text{Cyl. } 0.37 \text{ ax. } 90^\circ. \end{aligned}$$

10. A well-known oculist of a large Southern city had tried for five years to give a girl of 12 years of age glasses which would bring relief of her symptoms. The patient brought copies of a number of prescriptions ordered during this time. They differ from each other irreconcilably. The last one reads:

$$\begin{aligned} \text{R.} &+ \text{Sph. } 2.00 + \text{Cyl. } 0.50 \text{ ax. } 90^\circ \\ \text{L.} &+ \text{Sph. } 1.25 + \text{Cyl. } 0.50 \text{ ax. } 90^\circ. \end{aligned}$$

But the child was actually wearing spectacles passed upon, so the parent and patient said, as follows:

$$\text{B. E.} + \text{Sph. } 0.75 + \text{Cyl. } 0.50 \text{ ax. } 90^\circ.$$

The little woman "has had headache as long as she can remember"; "the pain is of the entire head, but worse in the temples, with nausea, but no vomiting." Since getting the last glasses in August, 1906, the headaches have been most constant and severe. There is car-sickness, anorexia, blurring of print, bloodshot eyes, styes, watering of eyes whenever she read, subjective color-sensations. Upon trying to find the error of refraction I found that with the

left eye the image of the test letters fades out every few seconds—a bad and significant sign of injured sensation-making mechanism. That eye also has only about 20/30 visual acuteness. The real error of refraction is:

$$R. + \text{Sph. } 2.00 + \text{Cyl. } 0.62 \text{ ax. } 90^{\circ} = 20/20 +$$

$$L. + \text{Sph. } 0.25 + \text{Cyl. } 1.25 \text{ ax. } 80^{\circ} = 20/30.$$

Because of the failure to bring relief with the absolutely incorrect glasses the oculist naturally ascribed the disease to “the period of adolescence!”

11. A woman of 28 had suffered, when she came to me, from “uterine congestion” for eight years and had been under a gynecologist’s constant care during this time. Worse than this were the severe headaches. An oculist in a neighboring city recently gave her glasses, = R. - Sph. 0.75, L. - Sph. 0.50. But her error is corrigible only by:

$$R. - \text{Sph. } 0.62 - \text{Cyl. } 0.25 \text{ ax. } 145^{\circ}$$

$$L. - \text{Sph. } 0.37 - \text{Cyl. } 0.37 \text{ ax. } 25^{\circ}.$$

Overcorrection of low degrees of myopia, and noncorrection of low degrees of myopic astigmatism is as common as it is health-wrecking.

12. A man 27 years old came to me, wearing, both eyes, + Sph. 2.50 + Cyl. 1.25 ax. 90°. These glasses were prescribed recently by a physician, an oculist of established reputation in a neighboring city. The patient had been wearing glasses for ten years from the same man. His symptoms have not been bad or severe, but have prevented him from doing the desired amount of study, reading, etc.; they were “nervousness,” poor vision, blepharitis, drowsiness, “heartburn,” indigestion, constipation, etc. The static error is:

$$R. + \text{Sph. } 3.50 + \text{Cyl. } 1.37 \text{ ax. } 100^{\circ} = 20/30^{\circ}.$$

$$L. + \text{Sph. } 3.25 + \text{Cyl. } 1.37 \text{ ax. } 85^{\circ} = 20/30^{\circ}.$$

With as high a degree of hyperopia as this, the misplacing of the axes of astigmatism by 5° and 10° is inexcusable on the part of the oculist and the patient must suffer because of it.

13. For ten years a patient, a man 25 years old, has worn from a "leading oculist of his city," both eyes,—Cyl. 0.25 ax. 180° . He has had "severe and constant headaches, pain in his eyes," and other symptoms of eyestrain. Why? Because his static error is:

$$\begin{aligned} \text{R.} + \text{Sph. } 1.50 + \text{Cyl. } 0.62 \text{ ax. } 90^{\circ} \\ \text{L.} + \text{Sph. } 1.50 + \text{Cyl. } 0.50 \text{ ax. } 90^{\circ}. \end{aligned}$$

To characterize such ophthalmology properly would be impossible in parliamentary language. But such things are found in every good refractionist's office almost every day. Yet our "leaders" and textbook makers, and professors make no move to establish a college or school to deal seriously with the problem.

14. A reputable oculist of New York State, within a month or two, had ordered for a man of 45:

$$\begin{aligned} \text{R.} + \text{Sph. } 0.50 - \text{Cyl. } 2.50 \text{ ax. } 180^{\circ}. \\ \text{L.} + \text{Sph. } 0.75 - \text{Cyl. } 2.50 \text{ ax. } 180^{\circ}. \end{aligned}$$

The man had been suffering from vertigo, nervousness and restlessness, conjunctivitis, etc. The explanation of his nonrelief is found in the facts that the foregoing correction was ordered without the use of a cycloplegic (most necessary at this man's age) and that no reading glasses were ordered. The patient was made happy by:

$$\left. \begin{aligned} \text{R.} + \text{Sph. } 0.25 - \text{Cyl. } 2.12 \text{ ax. } 180^{\circ} \\ \text{L.} + \text{Sph. } 0.25 - \text{Cyl. } 2.12 \text{ ax. } 15^{\circ} \end{aligned} \right\} \text{Dist.} \quad \left. \begin{aligned} & \\ & \\ \text{R. and L.} + \text{Sph. } 1.25 \text{ and Cylinders} \end{aligned} \right\} \text{Near} \quad \left. \begin{aligned} & \\ & \\ & \end{aligned} \right\} \text{Bifocals.}$$

15. A professor in one of our Eastern universities was ordered by the chief ophthalmologist of a German university +Sph. 1.00,

each eye. His painful eyes, headaches, etc., persisted, and were only relieved by:

$$\left. \begin{array}{l} \text{R. + Sph. } 0.75 + \text{Cyl. } 0.25 \text{ ax. } 125^{\circ} \\ \text{L. + Sph. } 0.75 + \text{Cyl. } 0.25 \text{ ax. } 105^{\circ} \end{array} \right\} \text{Distance.}$$

R. + Sph. 1.37 and Cylinders, Reading.

16. In 1888, a woman of 47 came to me wearing, from a famous professor of ophthalmology and his chief assistant (both in collaboration), the following:

$$\begin{array}{l} \text{R. - Cyl. } 3.00 \text{ ax. } 20^{\circ} \\ \text{L. - Sph. } 3.00. \end{array}$$

I found that with a - Cyl. 6.00 added in the left eye I gave the woman 20/30? vision, and a useful eye she did not know existed before.

17. From a Baltimore authority in ophthalmology a young man got an order for + Sph. 0.75, both eyes, although the correct prescription would have been:

$$\begin{array}{l} \text{R. + Sph. } 0.50 + \text{Cyl. } 0.37 \text{ ax. } 180^{\circ}. \\ \text{L. + Sph. } 0.75 + \text{Cyl. } 0.25 \text{ ax. } 180^{\circ}. \end{array}$$

Ten series of refractions had given no relief of supraorbital headaches and many other symptoms. One was sufficient when it was correct.

18. A patient came to me wearing:

$$\begin{array}{l} \text{R. - Sph. } 0.37 - \text{Cyl. } 0.12 \text{ ax. } 180^{\circ}. \\ \text{L. - Sph. } 0.37 - \text{Cyl. } 0.50 \text{ ax. } 10^{\circ} \end{array}$$

He has had much indigestion, was unable to read, especially at night, was wakeful at night, excitable, etc. His need was for:

$$\begin{array}{l} \text{L. - Sph. } 0.37 + \text{Cyl. } 1.50 \text{ ax. } 100^{\circ}. \\ \text{R. + Cyl. } 0.75 \text{ ax. } 100^{\circ}. \end{array}$$

Of course he tilted his head persistently to the left, because he wished to see the things he looked at. And of course he had lateral curvature of the spine. But he was 43 years old.

19. A woman of 52 came to me last year complaining of violent "migraine" or sick headaches existing since childhood. She has also had pain in the forehead, occiput, back of neck, and in the spine. During the life of intense suffering she has had other related symptoms, depression, palpitation of the heart, etc. For this condition her Brooklyn oculist gave her, for near work, in pulpit spectacles, both eyes, + Sph. 2.00. Mrs. Eddy could have done better! The woman's nervous system and health, and great usefulness as a teacher demanded:

$$\left. \begin{array}{l} \text{R. + Sph. 0.12 + Cyl. 0.62 ax. } 10^{\circ} \\ \text{L. + Sph. 0.25 + Cyl. 0.37 ax. } 170^{\circ} \end{array} \right\} \begin{array}{l} \text{Distance} \\ \\ \text{Near} \end{array} \left. \vphantom{\begin{array}{l} \text{R. + Sph. 0.12 + Cyl. 0.62 ax. } 10^{\circ} \\ \text{L. + Sph. 0.25 + Cyl. 0.37 ax. } 170^{\circ} \end{array}} \right\} \text{Bifocals.}$$

For a peculiar intermediate work + Sph. 1.50 and Cyl., and + Sph. 1.62 and Cyl. were ordered. The former oculist lost his patient, the patient found perfect health, and the second oculist got the unlimited gratitude of the patient whose life of torment had been entirely unnecessary.

20. At the age of 8 a boy had to be taken from school for two years because of chorea "of the whole body," irritability, etc. Later headaches became troublesome, and dyspepsia. At the age of 15 an ophthalmic surgeon to a dozen hospitals ordered:

$$\begin{array}{l} \text{R. - Cyl. 0.50 ax. } 180^{\circ}. \\ \text{L. + Cyl. 0.37 ax. } 180^{\circ} \end{array}$$

The right lens was correct, but the left should have been - Sph. 0.50 - Cyl. 0.25 ax. 180° . The blunder could have been worse only if it had been made in the right eye.

21. A well-known oculist in Philadelphia ordered for a man of 37, for headaches, both eyes, +Sph. 0.75. His refractive error was:

$$\begin{aligned} \text{R. +Sph. } 0.75 + \text{Cyl. } 0.50 \text{ ax. } 75^\circ &= 20/30? \\ \text{L. +Sph. } 0.62 + \text{Cyl. } 0.37 \text{ ax. } 105^\circ &= 20/40 + \\ &\text{with exophoria.} \end{aligned}$$

Deducting + Sph. 0.37, from this, one sees that the overcorrection of hyperopia and the noncorrection of astigmatism, added insult to injury as regards this man's eyes and nervous system.

22. The "best oculist" in a neighboring city, without having used "drops" ordered a man of 25 for both eyes alike, -Cyl. 0.25 ax. 180°. Headaches, severe and constant, pains in the eyes, drowsiness on reading, etc., were the complaints. The man's error of refraction was:

$$\begin{aligned} \text{R. +Sph. } 1.50 + \text{Cyl. } 0.62 \text{ ax. } 90^\circ. \\ \text{L. +Sph. } 1.50 + \text{Cyl. } 0.50 \text{ ax. } 90^\circ. \end{aligned}$$

Comment is unnecessary!

23. A visiting surgeon to a famed eye hospital told a woman of 34 that she had no astigmatism and ordered:

$$\begin{aligned} \text{R. -Sph. } 0.50. \\ \text{L. -Sph. } 0.75. \end{aligned}$$

She had been confined in sanatoriums and asylums because of ill-health, physical and psychic, characterized chiefly by nervousness and certain delusions. The above glasses ordered had added to the symptoms "twitching of the eyes." I found the woman had:

$$\begin{aligned} \text{R. -Sph. } 0.37 - \text{Cyl. } 0.37 \text{ ax. } 105^\circ. \\ \text{L. -Sph. } 0.25 - \text{Cyl. } 0.50 \text{ ax. } 60^\circ. \end{aligned}$$

This is an error which, in my experience, is as certain as any to upset the nervous system, and even the mental balance. Pro-

fessors who ignore such errors should be sent to some refraction school—when it is established.

24. For years a little girl's mother had been incessantly trying to get the child to "stop poking her head sideways." She had been "b'lious," constipated, and suffered in many ways; she was morbid-minded, irritable, and excessively, even alarmingly, "nervous." There was persistent "batting of her eyes." The New York "Ophthalmic Surgeon" had recently given her, both eyes the same, +Sph. 0.50 +Cyl. 0.75 ax. 90°. The child's mydriatic error was:

R. +Sph. 0.87 +Cyl. 0.25 ax. 75°.

L. +Sph. 0.75 +Cyl. 0.37 ax. 75°

The symptoms disappeared, and the child's back is to-day normally straight and her head held erect.

25. For a dozen years a woman of 28 had been wearing glasses from a physician, a specialist in diseases of the eye. She first consulted him on account of using but one eye, and also for headaches. For seven years she has had severe backache, weakness of the legs, etc. She had sudden "dizzy spells," during which she must lie down. She had great and constant drowsiness. She complained of nervous headaches, "but without pain." (Patients frequently say they have "headaches without any pain in the head," or *vice versa*, that they have "pain in the head without any headaches.") The woman's oculist had compelled her to wear the following murderous lenses:

R. Plano.

L. -Sph. 0.62.

I ordered instead these:

R. +Sph. 0.25 +Cyl. 0.25 ax. 60° = 20/20 +

L. -Sph. 0.12 +Cyl. 0.25 ax. 105° = 20/25.

The woman had been a life-long head-tilter.

The left eye was fast going out of function.

26. In 1902, the parents of a young woman, 19, for many years a head-tilter, afflicted with headaches, sick headaches, vomiting, etc., were told by her famous Philadelphia "Ophthalmic Surgeon" that she would before long be insane. But just to lessen the danger he prescribed:

R. + Cyl, 2.50 ax. 90°.

L. + Sph. 0.50 + Cyl. 2.25 ax. 90°.

The ophthalmologist's prognosis for the poor girl was perfectly correct—if she had continued under his care! She consulted another, a nonfamous advisor, and he ordered:

R. + Cyl, 5.00 ax. 100°

L. + Cyl. 4.75 ax. 105°

She has been happy ever since.

27. There is in Philadelphia a great "conservative" much addicted to patient-stealing, surgery, and ordering many "office-visits," who prescribed for a patient, a lad of ten years of age, the following:

R. - Sph. 0.62 + Cyl. 3.75 ax. 90°

L. - Sph. 0.50 + Cyl. 3.75 ax. 75°.

But the total error of refraction was:

R. + Sph. 0.75 + Cyl. 3.25 ax. 90°.

L. + Sph. 0.75 + Cyl. 3.50 ax. 80°.

This boy was a constant head-tilter, had chorea, headache, disordered stomach, etc. It was fortunate for that child that he escaped "scientific treatment."

28. In 1899, a man of 30, suffering from nausea and headache, came to me wearing the following, from an eminent author of ophthalmic text-books, "Ex-President, etc., etc.," "Visiting Ophthalmologist to the, etc., etc.":

Both eyes +Sph. 0.75 +Cyl. 1.00 ax. 90°.

But his proper correction was:

R. +Sph. 0.37 +Cyl. 1.00 ax. 90°.

L. +Cyl. 1.75 ax. 90°.

The eminent expert should be compelled to take a course in the New Refraction College to be established—when?

29. From the "best oculist in California" a physician, suffering with frontal headaches, sleepiness, etc., was wearing, both eyes, -Cyl. 0.75 ax. 180°. The optical error of this "Member of the Guild" was, both eyes, +Cyl. 0.75 ax. 90°. Even science and skill will make such blunders when a cycloplegic is not used.

30. From one of Pittsburg's most reputable oculists a surgeon, aged 58, was wearing, both eyes, +Sph. 3.00, but was much troubled with subconjunctival hemorrhages. I ordered:

R. +Sph. 2.75 +Cyl. 1.75 ax. 180°.

L. +Sph. 3.50 +Cyl. 0.37 ax. 180°.

Sph. +2.50 added for near in bifocals.

R. Sph. +3.75 and Cyl.	} Operating glasses.
L. Sph. +4.50 and Cyl.	

The hemorrhages disappeared until two years later differences of refraction and accommodation required changes in the lenses.

31. In 1900, a woman of 45 came to me wearing an atrociously wrong pair of glasses. She had had "St. Vitus' Dance," all sorts of headaches, much indigestion, etc. Seven years ago she began having seizures of swooning or unconsciousness with "spasms." Two fingers of the left hand have been paresthetic. The "falling fits" latterly have been recurring every two or three days, unless she takes bromids, when they are delayed, and occur about once a week. I ordered:

R. +Sph. 1.12 +Cyl. 0.75 ax. 90°, Prism 2° Base up.

L. +Sph. 1.25 +Cyl. 0.50 ax. 90°, Prism 2° Base down.

With presbyopic correction, in bifocals.

Since the day the glasses were worn there has been but one slight attack of unconsciousness, and the health is good.

32. A man of 38 came to me in 1898 wearing from a great text-bookmaker, an ophthalmologist of fame, B. E. +Sph. 1.00. He had had severe frontal headaches, some sick headaches, and pain between the shoulders. These symptoms disappeared when he began wearing:

R. +Sph. 1.00 +Cyl. 0.37 ax. 165°.

L. +Sph. 0.75 +Cyl. 0.62 ax. 180°.

33. In 1896, a child of 8 was told by a Philadelphia oculist that no error of refraction existed sufficient to cause the frontal headaches, pain in the back of the neck, and anorexia. The symptoms kept on and grew worse. I found:

R. +Sph. 0.25 +Cyl. 0.37 ax. 35°.

L. +Sph. 0.37 +Cyl. 0.37 ax. 145°.

and ordered spectacles to be worn all the time. Since then there have been no headaches, no lack of appetite, no neckache. She demands her glasses, wears them all the time, as their disuse at once brings on headache.

34. In the summer of 1904, a young woman of 23 was sent to a sanatorium with "breakdown" or "collapse." All her life she had gone to bed with headache almost every day. She had chorea as a child, and still had it so far as concerned the facial muscles. When the crises of "congestive headache" come on she is so dizzy she cannot see or walk. Her oculists have never demanded that she should wear their glasses *all* the time, so she has not done so much of the time, especially when not using her eyes for near-work. She has been under the care of many physicians, especially that of a great New York neurologist. She has taken

all sorts of drugs, baths, electricity and—the rest! A prominent Philadelphia oculist recently ordered:

R. + Sph. 1.62 + Cyl. 0.75 ax. 110°.

L. + Sph. 1.62 + Cyl. 1.00 ax. 80°.

Her proper correction is:

R. + Sph. 1.75 + Cyl. 0.62 ax. 100°.

L. + Sph. 2.00 + Cyl. 0.62 ax. 80°.

35. A man, 57 years of age, came to me saying: "I have been to many oculists, but all have refused to give me glasses or have given me things I could not wear a minute. See if you can help me." The history was of headaches, dyspepsia, and a life of inability to read or write, a life of out-of-doors, every day and all day. Several of the oldest oculists of the city of —, and of the city of —, and of —, did order spectacles, but he could not wear them despite all efforts to do so. One had ordered a plano lens in one eye. Several refused to order glasses at all. Dr. —, of B., five years ago ordered: R. — Sph. 0.50 — Cyl. 3.50 ax. 30°, L. — Cyl. 4.00 ax. 30°. The man was a head-tilter, had a long spinal S-curve, etc. I found his refraction errors to be:

R. — Cyl. 5.00 ax. 20° = 20/30?

L. — Cyl. 1.00 ax. 45° = 20/30?

+ Sph. 2.50 added for near in bifocals.

He has not had a minute of discomfort with these lenses; he immediately regained health. But the most gratifying change is that of his mind, disposition, and actions, which before were morbid, in many distressing ways, but which are now natural and pleasing.

36. These are the last three prescriptions given a man of 53 by the best oculist of his native city in New England:

R. + Cyl. 2.50 ax. 180°	} Distance.
L. + Sph. 2.50 + Cyl. 0.50 ax. 135°	
+ Sph. 2.00 added for near work.	

$$\left. \begin{array}{l} \text{R. + Sph. } 2.00 + \text{Cyl. } 2.50 \text{ ax. } 80^\circ \\ \text{L. + Sph. } 4.50 + \text{Cyl. } 0.50 \text{ ax. } 135^\circ \end{array} \right\} \text{Near.}$$

$$\text{R. + Sph. } 1.25 + \text{Cyl. } 2.25 \text{ ax. } 80^\circ.$$

$$\text{L. + Sph. } 3.00 + \text{Cyl. } 0.50 \text{ ax. } 30^\circ.$$

The correct diagnosis is:

$$\left. \begin{array}{l} \text{R. + Sph. } 0.75 + \text{Cyl. } 1.75 \text{ ax. } 75^\circ = 20/30 \\ \text{L. + Sph. } 1.62 + \text{Cyl. } 2.25 \text{ ax. } 145^\circ = 20/50 + \end{array} \right\} \text{Dist.}$$

$$\left. \begin{array}{l} \text{R. + Sph. } 3.00 \text{ and Cyl. } \\ \text{L. + Sph. } 3.50 \text{ and Cyl. } \end{array} \right\} \text{Near.}$$

In bifocals.

Is it any wonder the man's troubles were not relieved, and that the left eye was half-ruined?

37. In February, 1904, came to me as perfect an example of physical womanhood as I ever saw, 24 years of age, with a history of severe "migraine" or sick headaches, keeping up at intervals all her life. Excitement, or menstruation, etc., has been likely to bring on the crises. She had also many other of the common symptoms of "migraine." I ordered B. E. + Cyl. 0.62 ax. 90° and the sick headaches grew worse. I rerefracted, but failed again to give her relief. Laboratory diagnoses revealed low hemoglobin, but nothing else wrong. Three years passed without further visits and there was still no relief from the migraine. It looked bad for my theory! But during these three years I had learned something about tilted heads and kinked backs. I now found that three years ago I had failed to notice the tilted head of this woman, and so I had not discovered that her right axis was not 90°, but was 105°.

38. A man of 56 had suffered from indigestion, flatulence, and constipation since early childhood. Fifteen years ago he had a

“general breakdown,” “nervous prostration,” etc., attributed to “overwork.” A few years ago headaches came on, heaviness of eyes, distress in head, etc. Later, vomiting, great numbness of the arms, dizziness, and nausea, and severe insomnia. He came to me wearing, from one of Philadelphia’s prominent oculists:

R. +Sph. 0.62 +Cyl. 0.50 ax. 90°.

L. +Sph. 0.37 +Cyl. 0.75 ax. 60°.

With 2.75 added for near work.

Now, a man of 54 (he was 54 when they were ordered) does not normally have a presbyopic failure of 2.75, and this man did not. He was thus compelled to hold his book within eight inches of his eyes—a source of eyestrain, *per se*. But even at 56 his proper correction was:

R. +Sph. 0.50 +Cyl. 0.37 ax. 120°.

L. +Sph. 0.37 +Cyl. 0.37 ax. 90°.

With +Sph. 2.25 added for near work, in bifocals.

There is no cure of eyestrain without the absolutely correct location of the axes of astigmatism.

39. From one of Newark, New Jersey’s, foremost oculists a patient of 67 years of age came to me wearing, B. E., +Sph. 1.25 for distance, and for near +Sph. 3.25. She has worn such glasses as these for 23 years, but for 50 or more years she has been almost a constant sufferer from chronic constipation, severe and almost uninterrupted headache, pain in the eyes, sleeplessness, etc. Can any but “conservative” ophthalmologists, and typical neurologists dream that this woman’s half-century of suffering has been useless, has been due, at least in the last 25 years, to ophthalmologic crime, to the lack of correction of this error of refraction:

R. +Sph. 0.75 +Cyl. 1.12 ax. 180°.

L. +Sph. 0.62 +Cyl. 1.00 ax. 180°.

with proper presbyopic correction in bifocal spectacles?

40. In October, 1905, a woman of 45 came to me complaining of nausea without apparent cause, frontal headache, car-sickness, "stomach trouble," insomnia, "nervousness," cardiac palpitation, etc. She had taken nitroglycerin for two years. For some of these things, growing worse, she had worn glasses for 21 years, from a number of oculists, the last prescription being:

R. — Sph. 4.00 — Cyl. 2.00 ax. 120°.

L. — Sph. 2.50 — Cyl. 2.25 ax. 180°.

Exophoria 4°.

This correction was not far wrong, but no reading glasses were ordered, and especially no bifocals. I ordered:

R. — Sph. 4.12 — Cyl. 2.25 ax. 110°	} Dist.	} Bifocals.
L. — Sph. 1.87 — Cyl. 2.25 ax. 180°		
R. — Sph. 3.00 and Cyl.	} Near	
L. — Sph. 0.75 and Cyl.		

In a month the woman was "getting fat," and later she was (and continues to be) "practically well."

41. A woman of 38 came to me three years ago wearing:

B. E. — Sph. 0.12 + Cyl. 0.62 ax. 90°

from one of Philadelphia's prominent oculists. She had recently begun having severe attacks of "migraine," being kept in bed by them two days, with vomiting. She has had intestinal indigestion "all her life." I found:

R. + Sph. 0.12 + Cyl. 0.75 ax. 90° = 20/20 +.

L. + Sph. 0.12 + Cyl. 0.75 ax. 75° = 20/20 +.

Exophoria 4°, abduction 8°, adduction 9°

Simple cylinders were ordered, and the adduction increased by gymnastic exercises to 80°, with slight esophoria. All symptoms

disappeared in a couple of months, there was a gain in weight, and there has since been perfect health.

42. "I can't eat anything, I have such a sick stomach, and I have doctored until I am tired; no glasses have done any good." Thus said a patient, 25 years old, in 1896. I could not get a copy of other prescriptions. I ordered:

R - Sph. 0.50 + Cyl. 1.50 ax. 90°.
L. + Cyl. 1.00 ax. 90°.

There was immediate cure—all symptoms vanishing at once. Slight symptoms recurred when glasses needed changing, to disappear when the change was made. At the last visit, in 1907, the error was, both eyes +Cyl. 2.00 ax. 90°.

43. A woman, 39 years of age, had vertical and occipital headache for years, worsened by use of eyes at near range, occasional sick headaches with both nausea and vomiting, indigestion, neuralgia, melancholy, etc. She had recently been ordered by her oculist:

R. + Sph. 0.25 - Cyl 0.62 ax. 180°.
L. - Cyl. 0.50 ax. 180°.

I ordered this:

R. - Sph. 0.12 + Cyl. 0.62 ax. 105°.
L. - Sph. 0.25 + Cyl. 0.50 ax. 90°.

There was so much improvement in all the symptoms that it might almost be pronounced a cure. As this was not completely satisfactory to me, I asked her to return, and I found at this time what I should have found at the first visit, a slight lumbar left curve of the spine, with resultant facts and symptoms.

44. For many years a woman of one of the New England States had been an invalid, surrounded by nurses and by physi-

cians. To describe the symptoms and long history of illness would take too much space. She had recently been ordered by one oculist:

R. + Cyl. 0.25 ax. 180°

L. + Cyl. 0.50 ax. 90°

and by another:

R. + Sph. 0.25 + Cyl. 0.25 ax. 45°

L. + Sph. 0.25 - Cyl. 0.25 ax. 135°.

She had, however, the worst sort of ametropia, a low degree of simple myopic astigmatism. I ordered:—

R. - Cyl. 0.25 ax. 150°
L. - Cyl. 0.25 ax. 30° } Distance.

B. E. + Sph. 0.50 added } Near.

In a month her husband wrote me she “began to improve at once” after getting glasses; “progress is steady and rapid.” “When she takes her glasses off she has flashes of light.” In six months the progress toward health was still gratifying.

45. A famed “ophthalmic surgeon” of New York City last year ordered a woman of 31 to wear:

B. E. - Cyl. 2.50 ax. 180°.

The woman had great suffering of many kinds, and because of troubles in her own family, with supposed inheritance of insanity, etc., was so profoundly depressed that she was frequently on the verge of committing suicide. The gynecologists had done what they could (most of the women who reach the gynecologic operating-table have been lifelong sufferers from eyestrain), the nerve men have done what they couldn't, and two tenotomomaniacs demanded

permission to cut her ocular muscles. There was, however, need for:

$$\left. \begin{array}{l} \text{R. + Sph. } 0.25 - \text{Cyl. } 3.00 \text{ ax. } 180^\circ \\ \text{L. + Sph. } 0.25 - \text{Cyl. } 3.00 \text{ ax. } 180^\circ \end{array} \right\} \text{Distance.}$$

$$\left. \begin{array}{l} \text{R. + Sph. } 0.87 \text{ and Cyl. } \\ \text{L. + Sph. } 0.75 \text{ and Cyl. } \end{array} \right\} \text{Near.}$$

Her muscles were to be advanced or tenotomized for one degree of exophoria! How many crimes are committed in the name of medical science.

46. A boy of 11 had chorea, headache, blepharitis, and great "nervousness." His local oculist in a neighboring State ordered:

$$\begin{array}{l} \text{R. + Sph. } 2.00. \\ \text{L. + Sph. } 2.50 + \text{Cyl. } 0.25 \text{ ax. } 90^\circ. \end{array}$$

I ordered the following:

$$\begin{array}{l} \text{R. + Sph. } 1.50 + \text{Cyl. } 1.62 \text{ ax. } 90^\circ. \\ \text{L. + Sph. } 2.00 + \text{Cyl. } 1.00 \text{ ax. } 90^\circ \end{array}$$

The chorea had extended to constant spasmodic motions of the right arm and leg. In addition there was stammering, a halting and then explosive method of speaking. All these things disappeared gradually after wearing the last glasses and for the last three or four years have not existed.

47. For a girl 10 years of age an oculist of Leipzig, Germany, prescribed, according to Continental wisdom, both eyes, +Sph. 1.00, and an American, B. E. +Cyl. 0.25 ax. 90°. The child was constipated, had "bilious attacks" with vomiting, coated tongue, fickle appetite, headaches, etc. As no relief came from the glasses, the American ordered their use discontinued. Then to former troubles, temporary strabismus was added, with diplopia. The following in spectacles cured the child of every complaint:

$$\text{B. E. + Sph. } 0.37 + \text{Cyl. } 0.37 \text{ ax. } 90^\circ.$$

48. An ophthalmic surgeon of international reputation, in New York City, ordered a woman of 24:

R. + Cyl. 0.25 ax. 90° , Prism 1.5° Base in.

L. + Cyl. 0.25 ax. 90° , Prism 1.5° Base in.

The woman's symptoms were frequent headaches, with nausea, since childhood, and great insomnia, extreme nervousness and restlessness. It has been well said that "Happiness is made up of little things, but itself is not a little thing." It could aptly be said of eyestrain. I ordered for the much and long-suffering woman:

R. + Cyl. 0.37 ax. 90° .

L. + Cyl. 0.25 ax. 105° .

Her letters since express "gratitude for the perfect comfort she has had, although using her eyes more than for several years." A famous orthopedic surgeon discovered spinal curvature soon after she first came to me, and ordered a thick-soled shoe. It hurt her so (pain in the back) that she discontinued its use and successfully took up gymnastic exercises instead. She suffers, however, if her glasses get crooked or if she leaves them off.

49. A Philadelphia oculist ordered, in 1899, for a man of 28 the following:

R. + Sph. 2.25 + Cyl. 1.00 ax. 180° } Distance.
L. + Sph. 2.25 + Cyl. 1.00 ax. 90° }

R. Prism 1.5° Base in } Fronts.
L. Prism 2.0° Base in }

The man had pain in eyes, frontal headaches, daytime sleepiness, indigestion, and "nervousness." He had been wearing glasses for 14 years. I at once ordered:

R. + Sph. 2.00 + Cyl. 1.25 ax. 15° .

L. + Sph. 2.00 + Cyl. 1.12 ax. 80°

For his esophoria of 18° , and hyperphoria of 3° I did nothing beyond advising the man for a while not to visit New York. He has had none of the old symptoms since wearing the glasses I ordered. He still has an esophoria of ten or twelve degrees. There is no hyperphoria. I long ago gave him permission to go to New York if he wished to do so. I have another patient with 22° of esophoria, a student and great reader, who is likewise without a symptom.

50. "Deficiency of hydrochloric acid" is often due to eyestrain. This was proved to be true in Mrs. H.'s case, a woman of 33, who consulted me first in 1895. There was also severe indigestion, pain in stomach, inability to read five minutes without bringing on this pain, etc. Sometimes it has been called nervous dyspepsia. The most troublesome of all her symptoms, however, was a dermatitis, "an eruption," especially of the face, so great as to require "lancing" by a dermatologist of her city. She had been treated in vain for this affection for six months. A general physician who had exceptional observing powers finally told her, despite her glasses from a reputable ophthalmologist, that her skin trouble was due to her eyestrain. Within two weeks after I had ordered a change of glasses the disease both of the stomach and skin disappeared. Both returned eight years later when she had neglected to have her glasses changed as I had advised. With new glasses they promptly disappeared once more. The last prescription was:

R. + Sph. 1.87 + Cyl. 0.25 ax. 45°	} Distance.	} Bifocals.
L. + Sph. 2.12 + Cyl. 0.25 ax. 135°		
R. + Sph. 3.00 and Cyl.	} Near.	
L. + Sph. 3.25 and Cyl.		

Dermatologists are vainly treating many patients which the refractionist could speedily cure.

A REMARKABLE CASE OF EPILEPSY
CAUSED BY EYESTRAIN.

CHAPTER V.

A REMARKABLE CASE OF EPILEPSY CAUSED BY EYESTRAIN.¹

On October 12, 1906, a child of four years of age, to all appearances physically perfect, was sent to me by a general physician of a Western city. For a year or two the boy had been having epileptic seizures. No "neurotic" antecedents were to be found in the family history. The father and the mother were as good examples physically of manhood and womanhood as one may find. The father was an educated physician, though not practising at the present time. No cause for the attacks in the child could be found, except the fancied and "scientific" ones, and they are hardly worth mentioning. Nothing pointed to the eyes. The child was sent to me because I had advocated the truth that in some instances epilepsy is due to eyestrain, and because under the advice and treatment of many of the most famous neurologists, pediatricists, and general physicians of the United States the child had steadily worsened. After two years of lost and precious time, after two years of injury, after two years of perfect failure, anything, even an eyestrain crank may be tried. The attacks were of all varieties of the two types called *petit mal* and *grand mal*.

¹*Buffalo Medical Journal*, May, 1908.

The total number of all kinds of attacks during the preceding year had been ranging between 437 and 969 per month. The "typical" or *grand mal*, or severest convulsive seizures, with loss of consciousness, etc., numbered from 5 to 25 per month. After one of these attacks it is about twenty minutes before the child can turn his head on the pillow, and the nurse thinks that the attacks in which consciousness is not lost are the worst or more harmful. The child was so stupified and drunk with the bromids which "science" had ordered poured into him for a year or two that a retinoscopic estimate of the refraction was not possible or would have been so inaccurate as to be worthless. There was but one thing to do, that which I had so long and frequently urged upon the profession, and yet which I judge has never been done by any practitioner. It will be a century, possibly, before the most valuable and easily carried-out method of establishing a differential diagnosis by means of cycloplegia will end doubt, stop useless drugging and mistreatment, in millions of cases of headache and of a hundred kinds of functional disease possibly due to eyestrain. In the case of this poor boy his advisers would, of course, have scouted the idea that his epilepsy could be due to eyestrain, and they would have preferred that he die by bromidism rather than try a harmless drop of atropin to help clear up the etiology of the disease. The greatest pediatric authority in America said the lad had a brain tumor,—*Vale Pediatrics!* The equally great neurologist was equally sure, of course, that "it was a case of

pure Jacksonian epilepsy." The adjective "pure" is comforting, and "Jacksonian" whistles for the trephine. *Vale* Neurology! One leader was mighty sure the disease was "atypical epilepsy." But all diseases are atypical, and "atypical" seems as incurable as "pseudo," or any other disease. The most illuminative diagnosis of another great specialist was pseudoepilepsy, but what to do for the disease, "pseudo," was a question left unanswered. *Vale* Pseudology! More sensible and far more funny was the theory of an attendant who, against the oculist, took the side of scientific medicine. She vigorously protested that not bad eyes, but epilepsy, was the boy's trouble! Of course, the child had been X-rayed, stomach contentsed, hematologized, and all that, and all that again. How many thousands of dollars did it all cost? But thanks to a superior wisdom, holes were not bored in the boy's cranium; nor was it sliced like a melon; nor was opportunity given to find "the dura mater adherent," etc., etc. The little less worse was the compelled choice, and for a year or two the boy was made drunk with the diabolic brutal bromid, which never cures and which always curses. Such is the degeneracy of Specialism!

In order to determine if eyestrain was the possible exciting cause of the attacks, I ordered atropinization of the eyes. But I cared so little for my theory and so much for the patient that I at once began demanding that the bromid should be stopped. In this I was not successful until a month's time had been lost and a month's injury

gained. I was able immediately to secure the consent of the parents that it was better the boy should die of epilepsy than become the lingering idiot of bromidism. Parental love was clear-headed and right-hearted, but "Science" quite naturally preferred the idiocy.

With atropinisation alone the total number of attacks was lessened by about a hundred during the following month. From a written statement of the examining physicians made two weeks after atropinization of the eyes was begun I quote: "Two things impressed us, his brighter mental condition and his improved locomotion. There have been no convulsions for eleven days, the longest period of freedom from attacks for three months. He walked better, his mental condition brightened, as shown in conversation, and the like, and he was sleeping better." On November 10, I at last succeeded in getting the bromid stopped. It was somewhat risky perhaps, and I was keenly solicitous as to the result. Had the child died I should still have felt I had acted rightly. The child did not die, but something of significant interest occurred. The *petit mal* seizures greatly lessened, in the ensuing month, and the *grand mal* attacks were increased in number. The exact figures are these: out of a total of 404, in November, 59 were of the *grand mal* type.

With the bromid drunkenness removed, it was now possible to measure the ametropia by means of the retinoscopic method, and glasses neutralizing the boy's compound hyperopic astigmatism were secured. Two noteworthy results followed: The child fought to a vic-

tory against the atropin instillations; and he was just as anxious to wear his spectacles. This proved that the atropinization is of use only temporarily and successful only partially in such cases, and that spectacles are the adequate and proper therapeutic agent. Moreover, it illustrates the old experience that when the right glasses are ordered, and when they are needed by the suffering nervous system, even babies of one, two, or more years of age will welcome them, will not allow them to be removed from the face, and will care for them as well if not better than the grown-ups.

Now comes the startling fact of the history: In the next month, December, after getting the spectacles, although the number of severe convulsive seizures increased somewhat, the total number fell from 404 to 157. In January the total number fell to 85, and in February to 7. Illness in the family during the spring of 1907, made necessary a change of residence for the boy. The journey to another city and the far more irritating environment resulted in a slight increase in the number of seizures. With return to the old home and better conditions, during the summer, six weeks went by without a seizure. At the present time, March, 1908, six months have passed with but two or three slightest *petit mal* hardly noticeable symptoms. The boy is at last natural-minded, and healthy-bodied, "plays with the other children, as a normal child." "His eyes have a bright and normal expression." "He drives the pony, telephones, wears his glasses constantly," etc. He weighs 67 1/2 pounds.

But the illustrious "leaders," the neurologists, and pediatricists, the pseudologists and the atypicalologists, the great ophthalmic surgeons, and diagnosticians, all, are to-day pronouncing upon multitudes of patients the doomful death warrants of "Jacksonian Epilepsy," "Brain Tumor," "Neurotic Inheritance," "Diathesis," "Autotoxemia," and the rest, and pouring out mystery and bromids with unconcern and self-satisfaction. While official and professorial ophthalmology tries to get its eyebrows in still more highly arched curves as it passes by on the other side. The professor's automobile is in haste on the way to the surgical clinic or to the learned lecture on organic pathology.

Postscript, June, 1909. The child is at this time perfectly well, and since the above report was written has not shown a sign or suggestion of any kind of epilepsy. Dr. Aaron, of Detroit, writes me that the foregoing facts are accurately stated.

FROM THE PATIENT'S POINT OF VIEW.

CHAPTER VI.

FROM THE PATIENT'S POINT OF VIEW.¹

This patient's history from the physician's standpoint was so instructive that I asked her to write it exactly as it appeared to her. When it was sent to me I found that my own records could add or change nothing, and as she is a woman of intellect and acumen, I have thought it best to let her account stand without change.

ITHACA, N. Y., February 7, 1909.

"Netherby," Cornell Heights.

MY DEAR DR. GOULD: The accompanying is a full statement of the condition of my health from childhood to the time when I went to you last year at the age of 39 years.

I had been a child of good, strong constitution, with a sound body, but of high-strung nervous temperament, irregular in mood, full of wild spirits one day, depressed and melancholy without any cause the next. My appetite was as capricious as my temper; sleep-walking and sleep-talking were of habitual nightly occurrence. The years between the ages of twelve and fifteen were spent in a boarding school. Continual headaches and severe pain in the face interrupted my classes, until finally all regular work was abandoned and it was an accepted fact that I should work one week and, alone in a dark room, rest completely the next. This meant

¹*Buffalo Medical Journal* for April, 1909.

giving up the use of my eyes, either for reading or writing, and even sewing.

Married at nineteen, the birth of my only child at twenty marked the breakdown of my physical strength, and during the next twenty years there was a gradual but constant deterioration of nerves and health, although no organic trouble ever developed and no disease was ever discovered to account for all the suffering. The nine months of pregnancy were marked by continual vomiting of unusual violence and the loss in weight of forty pounds. Nevertheless, I was able to nurse my child for eight months and she was fully and completely nourished.

The ten years following were made miserable by neuralgic pains in the face, under the right eye,—“*tic douloureux*” the doctors called it, and the habit of vomiting begun during pregnancy continued every morning. I was advised to have the suffering nerve cut, but as this was merely an experiment, I did not consent to have it done. The pain during those years became at times intolerable and the habit of taking small doses of morphin ($\frac{1}{16}$ of a grain hypodermically) was commenced; during these years it was never permanently given up although the habit did not get beyond my control and the dread of it remained a wholesome restraint.

During my twenty-ninth year I edited a German book which involved three months of close work, mainly consisting of the reading of German type and the correction of proof-sheets. The result was an attack of pain so much more acute that it was followed by “nervous prostration” which kept me in bed for three months. The treatment of this illness consisted of 240 grains of bromid taken every two hours for twenty-four hours, with aconite and gelsemium on the alternating hours.

The result was that in six weeks I was taken to the Adirondacks, reduced to “the lowest possible ebb of nerve-force,” the effect aimed at by the bromid treatment. Memory and speech were impaired, feeling and sensibilities were dulled, and the condition was one of continual “bromid drunkenness.” Mine might have

been taken for a case of erysipelas, because my face, head, hands and mouth were broken out with an eruption due to "bromid poisoning." But the neuralgic pain was gone! and in time I recovered, but to remain shattered nervously and so hardened to drugs that only enormous doses would ever have any future effect. From that date the hypodermic doses of morphin were increased to one grain and chloral for sleeplessness had to be taken in eighteen, to twenty-grain doses.

A trip to California and Europe was tried in order to take me from all social and household cares and work. The trip was unprofitable throughout because inability to take sufficient food to nourish me kept my vitality low, and my strength was being constantly sapped by headaches and vomiting.

In 1904 my daughter died and, soon after, a second attack of "nervous prostration" followed. This time there was no neuralgia in the face but a violent pain in the back of the head; this never completely left me until I put on glasses. The vomiting increased, and menstrual flowing continued uninterruptedly for eleven months. One month in bed again helped to reestablish some degree of health and I began a régime consisting of two raw eggs and one pint of predigested milk a day. Such an insufficient diet would not have been possible had I not by medical advice taken whisky in ever-increasing quantity—the theory being that by taking alcohol I was saving my system "the necessity of manufacturing animal heat."

Two years later came a third attack of "nervous prostration" with all of the same symptoms as before, *i.e.*, violent pain in the head, nausea, uninterrupted menstrual flowing, sleeplessness, and the like. This time the nervous exhaustion was more complete and a trained nurse was needed for three months, her sole duty being to keep me from making any exertion, to feed me in minute quantities, and to give me morphin hypodermically when the pain became intolerable.

The recovery was slower than on previous occasions and the

nervous strain left was difficult to bear. An unexpected change in material circumstances made it necessary, January 1, 1908, for me to assume upon myself the whole burden of household work. Much to my surprise I was perfectly able to do it, and by giving up all reading, sewing, and literary work, and merely using my strength for manual labor, with no eye-work at all, I was not only able to do the work, but gradually improved both nervously and physically.

Imagine my disappointment when after three months of hopeful improvement I noticed that by slow degrees all of the old symptoms were returning, although no change had been made either in my work or in my manner of living. Sleeplessness returned, vomiting, the pain in the head, and the continued menstrual flowing.

Then for the first time I had to notice that both my will-power and my mind were being affected. I could mark the mental deterioration by the difficulty I had in reading. The eyes could see, but the brain failed to be interested. Next, it became wearisome for me to listen even to a short conversation, as my mind would wander from the speaker into blankness and a dazed, stupid vacancy. Memory for even ordinary daily duties failed me more and more often.

There must have been some kleptomania at this time, for on two occasions I found in my possession articles of small value, but which certainly had never belonged to me, and which I never could account for; I did remember deliberately taking one certain object which I *knew* was not mine, and which I did not in the least want or covet, but felt impelled to take because the temptation appeared strong and my will-power had become numbed.

Lastly, the memory of my own name and house left me suddenly while out in the street and I was unable to return home without assistance, because the locality of my house, the way back to it, all, had faded away leaving no trace in my memory.

The misery, terror, and hopeless horror of those weeks defy description. It had been easy to endure suffering, weakness, and

the constant handicap of chronic ill-health. I had even been able to retain some hope against the hopelessness of a lifetime of illness that had no name and could neither be cured nor helped. But to lose my mind and my will-power was unendurable. My pride had been in my ability to endure physical suffering, and my firmness of purpose had served me valiantly for twenty years.

The tragedy of the future seemed to mean either insanity or, in case I was driven again into the hands of the neurologist or specialist, into the morphin habit: for I well knew that even a small dose given to me in my enfeebled mental condition would inevitably be my absolute ruin. Then it was that I resolved to consult you, Dr. Gould, as a final hope, and if you had found that you could not help me, I was firmly resolved to commit suicide.

Before going to your office some necessary letters were written, my affairs were all left in perfect order, and an overdose of morphin lay in my desk awaiting the result of my interview with you.

You never had a patient come to you more determined not to become a mental wreck or a morphin victim; never one whose life hung by a slenderer thread.

Up to this time I had been in the hands of ten different doctors, not one of whom had ever suggested that I might be suffering from the results of eyestrain. At the ages of 30 and 35 I had consulted two of the leading oculists of the country, as my eyes seemed for a short time to be affected by the "bromid cure" I had been through. After examining my eyes and testing my vision both oculists assured me that my "eyes were perfect." "The optic nerve is weak because your general health is poor. Go home, take care of yourself, build yourself up, and your eyes will improve correspondingly,"—this was in substance their advice.

Your diagnosis of my case was that I had suffered all my life from severe eyestrain, due to a small amount of astigmatism and considerable accommodational strain.

Your prescription reads:

R. +S. 0.37 +C. 0.25 ax. 165°.

L. +S. 0.37 +C. 0.25 ax. 180°.

The relief to the intense nervous strain was instantaneous. From the first hour of wearing the glasses the tension was lifted and has never returned. Within two days the mental condition began to improve. Reading became easy, thinking and working were possible as of old. My memory returned as sharp and clear as ever, and never for an hour has there been any return of the horrible depression; kleptomania vanished; and also, of course, all suicidal purpose. No morphin, drugs, or stimulants have been desired or taken since this time.

The improvement of a physical nature is even more marked, and more easily noted. The vomiting ceased *absolutely*. For the first time in twenty years food could be taken in sufficient quantity to nourish the body and supply strength and vitality.

Before the end of the first week the menstrual flowing that had been going on for five months ceased, and the past three months have proved that all irregularity has been completely corrected.

As for the pain in the head there has been no return of it at any time. I even note that in such an unimportant matter as a nervous trembling of the hands, which had made writing and sewing difficult for many years, has entirely disappeared.

A gain in weight of eleven pounds during the first six weeks is proof positive of the completeness of my recovery.

Pray do not hesitate to make what use you may see fit of this long account of my condition. I should be very glad to have the pleasure of being in any way of service to you. My name and address are entirely at your disposal and I make absolutely no restrictions as to the manner in which you may deem it best to publish this.

Faithfully, yours always,

KATHERINE M. HEWETT.

One is in duty bound to add that there are large numbers of oculists and general physicians who have in the same way failed to cure thousands of patients afflicted with similar sufferings due to the same cause. Multitudes of patients are being passed through oculists' offices with the same diagnoses of "eyes are perfect," "too little astigmatism to correct," "it is all due to your general health,"—or they are outfitted with glasses which add insult to the organism's already-existing injury. The great "leaders" whom this patient consulted are still giving the same advice to thousands. The fashionable neurologists are still treating their patients in the same way, and the professional responsibility for morphomania, drunkenness, bromidism, "neurasthenia," "hysteria," and the rest, continues and increases. Certainly, several thousand persons are annually committing suicide to be relieved of the terror of insanity, and of hopeless, mysterious, "causeless" disease, invalidism, and tragedy, when eyestrain, and eyestrain alone is the easily demonstrable cause.

It is almost incredible that this patient should have escaped the gastrologist, the surgeon, or the gynecologist. This miracle was due to the sound judgment, even medical and scientific judgment, of the woman herself.

POSTSCRIPT.

About six months after this patient's visit to me a valuable and interesting condition arose which is so illuminating that I feel compelled to add a postscript to

the history. With an excessive amount of reading and writing there was a return of some of the old symptoms, especially pain in the head, and inability to read. It took three trials of increased-strength lenses to demonstrate the commonly overlooked fact of subnormal accommodation. Plus Spherical 2.00 added to her distance correction, in bifocals at last brought relief of all symptoms, and return of perfect health. By carefully collating facts and pondering over the history I conclude that this subnormality of accommodation has always existed, but that even the marvelous vitality and resistance of this patient had been unable to conquer permanently both the ametropia and the subnormal accommodation. There was the spring to health for a time with the ametropic correction, but the second factor needed neuralization also. How many others, with less reacting ability, have been consigned to their fate because it has been overlooked that civilization puts the mechanism of accommodation to a task for which it was not made or habited. Large numbers of young people are thus handicapped, and need bifocal spectacles as much as those of 45 and over. In refraction work there may be no rules, and the problem of the individual variant is always present.

“SEIZING UPON” A PATIENT—EPITOME OF
A CASE OF EPILEPSY.

CHAPTER VII.

“SEIZING UPON” A PATIENT—EPITOME OF A CASE OF EPILEPSY.¹

Several years ago, from New York State a patient came to me whose story aroused so much interest and pity that I went to a good deal of trouble to secure all the data possible to throw light upon it, and also upon similar cases. The man was in middle life, and his family history was of the best, his brothers being strong, healthy men, and so far as known none of his ancestors or relatives has been afflicted with nervous disease. As a boy, school became irksome; even at seven he had headaches, “neuralgia,” etc. He soon concluded that he “wanted to make his own living,” and so he left school and went to work, at weaving, in a mill at the age of eleven—just as thousands are now illegally doing. He did a man’s work by the side of other men, and often labored from 16 to 18 hours a day. He had to bend forward and look at the fine threads closely. *Something caused him to change his occupation*, and at 18 he chose another, somewhat better than weaving for a patient with eyestrain. At the age of 24 he took up the playing of a musical instrument as an amusement, and spent

¹ *St. Louis Medical Review*, June 22, 1907.

the evenings of three or four nights a week reading music. All through these years stomach troubles and great "nervousness" were his chief ailments and he had a constant feeling of tension, depression of spirits, etc., so that he spent as much time as possible in boating and other out-of-door sports, during which he felt well and happy. When alone or reading, practising music, etc., his nervousness plagued him, and he became easily annoyed and irritable. For many years the man had had dyspepsia, constipation, "neuralgia of the stomach," and "neuralgia about the eyes." A few years before coming to me he read and played music one evening with his teacher for two hours, followed immediately by playing in a band at a concert for three hours. The next day, although sick and wretched he went to work and while doing some labor underneath a boat in a constrained position and with poor light, he had a series of epileptic, "epileptoid," or "pseudoepileptic" seizures, lasting for about thirty-one hours; the attacks followed one another in rapid succession. For a week thereafter he was "not himself." Then the seizures began coming on regularly every few weeks. For three or four hours after each one he was compelled to lie abed. Between the major attacks there were a dozen lighter ones, in which consciousness was lost for brief periods, but without falling. The tongue has been bitten but once. These seizures continued as described for about four months when a local physician advised consultation with a neurologist, the famous professor of ———

Medical College. A few questions were asked by this gentleman and the information elicited that the initial symptom of a seizure was some clutching or contractions of the fingers of the right hand or arm. It was most natural that the overworked and inordinately irritated center of the music-playing hand should show some irritability and that the aura should begin in the corresponding organ. The professor of neurology could not imagine such a cause, and at once sent the patient to the professor of surgery, who also "seized upon him," and trephined over the central motor area of the right hand. No tumor or other morbid condition was found to explain "the Jacksonian epilepsy." The man finally recovered from the operation, and while convalescing no attacks occurred. But they did recur when the patient began the use of his eyes after recovery and leaving the hospital. Then, the first operation having been so successful—in certain ways, at least, successful—a second trephining was demanded, and the poor compliant patient obeyed. Upon recovery, the man was told that sufficient disease of the brain had been found to cause the epilepsy, but it could not be promised that the attacks would cease. "We have done our duty," it was added, "and all we can, and it is up to you to get well" (these were the words used).

Owing to pain in the forehead and at the back of the neck following directly the music-reading and playing, the patient had discontinued these exercises and concerts. Once while playing he had fallen out of his

chair to the floor. Several times the patient tried to tell the learned professors when and how the seizures came on, of his belief that the music-playing, his eyes, etc., were at the root of his troubles, but these gentlemen did not wish such unscientific data, and snapped him to silence with his absurd suggestions. They were "too important and overconfident in their own opinions," said the unlearned patient.

The operation, even the "operation *per se*," had not been a success; or else the man was turned out of the hospital too soon, as the wound was soon in a bad state of suppuration, requiring considerable subsequent treatment and dressing. The side of the man's head presented a ghastly spectacle.

Soon after the second operation the epileptic seizures began once more and continued as before. Then the attacks by day stopped, taking place only at night and while the patient was abed.

Throughout this history the wretched ignoring of the origin of disease in functional disturbance, the mad dependence upon the belief in organic changes as the sole cause of disease, the universally deprecated rush to surgery in epilepsy, the failure to inquire as to the patient's eyes and habits—all these are amazing. Several years prior to the beginning of any seizures the patient had concluded that his "eyes must have been wrong," because the vision with one was only half as good as with the other. He had consulted an oculist of a near-by city who ordered

R. +Sph. 0.50 +Cyl. 0.25 ax. 90°.

L. +Cyl. 1.25 ax. 115°.

But owing to the peculiarity of his work the glasses had not been worn. Under mydriasis I now found:

R. +Sph. 0.75 +Cyl. 0.37 ax. 60° = 20/20 +

L. +Cyl. 1.75 ax. 115° = 20/20 +

Appropriate spectacles were ordered, and discontinuance of near use of the eyes for a time. The man was a head-tilter and had lateral spinal curvature.

One and one-half years have elapsed since I prescribed his spectacles, and he has worn them all the time. There has been but one convulsion, either by night or day, since. There is no pair of eyes, no brain, or nervous system, can carry on near work with such ametropia as this of my patient without producing disease of a kind to break the owner's usefulness, happiness, and life. If this man had had proper glasses and had been sufficiently warned as to their disuse, his three years of bitter experience, disease, operations, loss of time, and the rest could have been avoided.

And also the financial expense! There lie before me some of the receipted bills rendered by the two professors and the hospital, together with memoranda and letters which show that the "seizing upon" is sometimes not only by evil disembodied spirits which have been charged with causing the "Falling Disease," but by the flesh-and-blood officials of science and medicine. This

man was a poor, humble, trustful mechanic, and in an institution highly endowed by the charitable, for the benefit of the poor, he was treated by men living in great ease and supposably representing the sacred and humane science and art of medicine. I epitomize and list some of the items given *in extenso* in these original bills and accounts: The bill-heads and letter-heads are beautiful examples of the art of the engraver.

One visit to the neurologist and reference to the surgeon..	\$40.00
Surgeon's fee.....	75.00
Surgeon's fee.....	25.00
Hospital bill, board and care.....	20.00
Special nurse.....	6.00
Laundry 50c.; board \$1.00.....	1.50
Board and care	20.00
Operating room	10.00
Board and care	40.00
Special nurse.....	6.00
Laundry and board	1.50
Board and care	20.00
Special nurse.....	21.00
Laundry and board	8.50
Board and care	60.00
Special nurse.....	42.00
Laundry and board	17.00
Operating room	10.00
Seven dinners	8.25
Six suppers	3.00
Seven breakfasts.....	3.50
Seven cots	5.25
Hospital charges.....	149.00
Neurologist's fee.....	50.00

Surgeon's fee	50.00
Somebody else's fee ¹	25.00
Board and Lodging	10.00

The patient assures me that many of the bills and records of payments made have been lost or misplaced, and that the total amount of money paid for the advice, operations, and care was over \$1,000. From a letter of the surgeon to the patient I quote:

"The bill which I sent you was for services which had already been rendered. If you need further treatment there will, of course, be additional charges."

From a letter to me from the patient I also extract a few lines.

"I also have a bill when I stopped to pay the nerve-man a check. I gave it to him and he asked me how I was getting on. I just called to pay him in full, as I was through with him. Then for this he sent me another bill, because I had called to pay him in full for the old account. I did not pay this last bill as I thought I had stood enough."

The great majority of the medical profession, it is good to be assured, loathe such "science" and such "ethics" as are exhibited in the history of this case. But it is just as evident that this really scientific and truly honest majority must devise some way to prevent these stupid

¹The ophthalmoscopist's, probably, of course not the refractionist's! There was care to examine the fundus oculi, but none to know if eye-strain existed, and least of all to stop it. "Jacksonian epilepsy" demands surgical intervention. Then it is "up to the patient" to get well!

“scientists” and astute “leaders” from getting into power and then from carrying out their vicious schemes. At present our hospitals and medical college trustees who appoint professors have no care for or knowledge of scientific or ethical matters, and an ignorant scamp once in a professorial position can carry on his nefarious practices unquestioned by any controlling power or private scruple. The knowledge of this tendency is already killing the benevolence of the lay charitable world. It behooves the high-minded majority to look sharply after the low-minded minority.

HOW SEVERAL PROFESSORS TREATED A
MEMBER OF THE GUILD.

CHAPTER VIII.

HOW SEVERAL PROFESSORS TREATED A MEMBER OF THE GUILD.¹

About ten years ago a medical student just beginning his studies was concerned about symptoms of ocular and systemic ill-health, and about his possible inability to go on with his medical course. He had had "fiendish headaches" since he was six years old. He consulted one of the official oculists of the medical college, who found him wearing from another well-known "ophthalmic surgeon," let us call him *Professor No. 1*, prescribed two years previously, both eyes + sph. 0.50,—a fine piece of expert workmanship! Besides direct results to the eyes the patient was having "typical migraine," *i.e.*, he was coming down at frequent intervals with terrible sick headache; he was laid up at these times for several days, ending, as usual, with the vomiting crisis, the return to health for a week or so, and then the recurrence of the symptom-cycle as before. According to text-book wisdom, official science, ophthalmologic skill, neurologic diagnosis, and medical opinion, "the nature of this disease is unknown" (Osler); or it is based upon "autotoxemia," "neuropathic diathesis" or "susceptibility," "heredity,"

¹ *Lancet Clinic*, April 25, 1908.

and many such illuminating things or no-things. It is, at least, "incurable," according to these learned ones—surely not by +sph. lenses 0.50 placed before the eyes. So *Professor No. 2* tried to cure it, or to cure something, with B. E. +sph. 0.62 +cyl. 0.50 ax. 90°. A year or two later the fiend, "Typical Migraine," being still busy at his work, *Professor No. 2* tried another combination:

R. +S. 0.62 +C. 0.75 ax. 90°.
L. +S. 0.75 +C. 1.00 ax. 75°.

These lenses were worn for about five years, during which the mysterious T. M. continued as before, and the patient grew worse, if worse was possible. Then (estimated without a mydriatic) the prescription read:

R. +S. 0.75 +C. 0.75 ax. 90°.
L. +S. 0.87 +C. 1.00 ax. 75°.

At the first visit to *Professor No. 2*, however, there was something about the case which seemed to disconcert, and the patient was asked to allow consultation with two others. The opinion of *Professor No. 3* was not clearly pronounced, and no record of details exist. This was doubtless due to the fact that consultation with the fountain head of ophthalmic wisdom was resolved upon—with the Great, the Chief, *Professor No. 4*. The Fountain Head did not dream of or suggest any retesting of the refraction, for he was a devoted believer in the god of organic pathology. A glance with the ophthalmoscope showed that in the left eye "the disk was indistinct, the

small vessels appeared to be covered with exudation, and the fundus conditions resembled optic neuritis." The patient was bluntly told that he had optic neuritis in one eye, and that, eventually, at least, this eye, if not both eyes, would be lost. Professor No. 2 secretly differed, and quietly told the patient to go on with his medical studies. This was done. But "Typical Migraine," as said, obstinately continued, despite Professors 1, 2, 3, and 4. In postgraduate medical work it played havoc with happiness and success for six long, horrid years.

Until a much-scorned nonprofessorial "refraction crank" was consulted, who ordered, a few months after No. 2's last prescription:

R. +sph. 0.75 +cyl. 0.75 ax. $75^{\circ} = 20/20 +$.

L. +sph. 0.12 +cyl. 1.75 ax. $85^{\circ} = 20/20 +$.

There has not been an attack of T. M. from the day these glasses were secured. Once the spectacles "became crooked" or maladjusted and he had violent headache, disappearing immediately when the frames were refitted. The patient's gratitude is unbounded. Of course, he was a head-tilter and had lateral spinal curvature of the kind produced by such uncorrected axes of astigmatism. He remembers well that in childhood his mother tried to get him to "hold his head up straight." He "has taken gallons of pepsin and other drugs" for obstinate dyspepsia, continuous since he can remember. His "food lay undigested, and he had persistent coated tongue," etc. Reading has always ended in attacks of

T. M., photophobia, etc., followed by two days in bed several times a month, nausea, vomiting, etc. He now has perfect health and can read as long as he wishes without a sign of headache. He thinks that it was very brutal and unnecessary, as well as very unscientific, for *Professor No. 4* to make the diagnosis and statements he did, and very inexpert in *No. 2* to order a lens for the left eye that highly overcorrected the hyperopia and more injuriously undercorrected the astigmatism. (Was the "optic neuritis" a result of the blundering?) And he thinks that learned authorities should follow the old saw: "Don't never prophesy unless you know." He would probably add that the most easily curable of all diseases is T. M., but that wrong glasses will not cure it, and that correct ones will cure it in 99 cases out of 100. Will these also cure "optic neuritis"? At present the patient has not this disease either by examination with the ophthalmoscope or by the test-letter readings.

And yet medical science looks with awe upon the attainment of ideal accuracy by authoritative ophthalmology—that paragon of specialties, the realized ideal toward which other specialties vainly yearn!

In a thousand stories of and glimpses into the actualities of institutional ophthalmology, this is one that leaves a small pleasant recollection. Here, among four, was one young professor who still held in his heart a natural human kindness toward his patients. Not yet was the patient simply "clinical material" (a loathsome term), or "grist to his mill." Already, it is true, he was so

caught in influences and workings of the machines of urban institutionalism that he dared not openly differ from the great (*i.e.*, little) chief, but still were left sufficient youth and honor to differ privately, and to advise the tormented patient to go on with his lifework, regardless of the untrue "science" of the callous "Head of the Department." It is true that he missed in his diagnosis of the ametropia, but that was because he had grown up under the tutelage of "the machine," and the machine neither knows how nor cares to diagnose ametropia with accuracy. It is true that no number of such lessons made him withdraw from such influence, deny ambition, refuse to be a cog in the revolving, crushing grind, renounce professorial ways and successes; he had already been caught in the whirl, and "hunger and the advice of friends" drove him onward with the rest. Only by silencing the still, small voice, only by crying, "'Rah for for the Chief!" "Glory to the Great College!" "Blessed be Success!", and the rest, could he "win out." And so finally he disappeared under the juggernaut which once had not found him prone.

THE EXPERIENCE OF A MAN AND OF HIS
WIFE IN CHANGING SPECTACLES.

CHAPTER IX.

THE EXPERIENCE OF A MAN AND OF HIS WIFE IN CHANGING SPECTACLES.¹

In 1904, I had for the ten previous years been prescribing spectacles for Judge ———, and he had kept good health and working ability during this time. The last glasses ordered were:

$$\begin{array}{rcl}
 \text{R. + S. 2.37 + C. 0.25 ax. 180} & \left. \vphantom{\begin{array}{l} \text{R. + S. 2.37 + C. 0.25 ax. 180} \\ \text{L. + S. 1.25 + C. 0.37 ax. 105} \end{array}} \right\} \text{Distance} & \left. \vphantom{\begin{array}{l} \text{R. + S. 2.37 + C. 0.25 ax. 180} \\ \text{L. + S. 1.25 + C. 0.37 ax. 105} \\ \text{R. + S. 4.75 + C. 0.25 ax. 180} \\ \text{L. + S. 3.25 + C. 0.37 ax. 105} \end{array}} \right\} \text{Bifocals.} \\
 \text{L. + S. 1.25 + C. 0.37 ax. 105} & & \\
 \\
 \text{R. + S. 4.75 + C. 0.25 ax. 180} & \left. \vphantom{\begin{array}{l} \text{R. + S. 4.75 + C. 0.25 ax. 180} \\ \text{L. + S. 3.25 + C. 0.37 ax. 105} \end{array}} \right\} \text{Reading} & \\
 \text{L. + S. 3.25 + C. 0.37 ax. 105} & &
 \end{array}$$

In 1904, this patient was visiting a distant city, and although he was not suffering ocularly or systemically, he was prevailed upon by a friend to get glasses from the "leading ophthalmic surgeon of the city," Professor. ———. The ophthalmometer and science were called into service with the following results:

$$\begin{array}{rcl}
 \text{R. + S. 2.50 + C. 0.25 ax. 90} & \left. \vphantom{\begin{array}{l} \text{R. + S. 2.50 + C. 0.25 ax. 90} \\ \text{L. + S. 0.75 + C. 0.25 ax. 90} \end{array}} \right\} \text{Distance} & \left. \vphantom{\begin{array}{l} \text{R. + S. 2.50 + C. 0.25 ax. 90} \\ \text{L. + S. 0.75 + C. 0.25 ax. 90} \\ \text{R. + S. 4.00 + C. 0.25 ax. 90} \\ \text{L. + S. 3.00 + C. 0.25 ax. 90} \end{array}} \right\} \text{Bifocals.} \\
 \text{L. + S. 0.75 + C. 0.25 ax. 90} & & \\
 \\
 \text{R. + S. 4.00 + C. 0.25 ax. 90} & \left. \vphantom{\begin{array}{l} \text{R. + S. 4.00 + C. 0.25 ax. 90} \\ \text{L. + S. 3.00 + C. 0.25 ax. 90} \end{array}} \right\} \text{Reading} & \\
 \text{L. + S. 3.00 + C. 0.25 ax. 90} & &
 \end{array}$$

¹*Southern Clinic*, Richmond Va., April, 1908.

In a week or two, while wearing these last glasses, the patient was, one day, seized with violent vertigo, intestinal trouble, profound and alarming illness, mysterious and not-to-be-accounted-for by the leading physicians and consultants called in. He was away from home, and with great difficulty and expense was taken to his home-city. Here he remained in bed for some time. The diagnoses made by his physicians were many and various—renal colic and other kinds of organic affections. He consulted the best general diagnostician in a third city, who advised that he also see another equally famous Professor of Internal Medicine in a fourth and greater city. His mental equipoise was greatly upset by these suspicions. After a week or two of this worry and suffering, and while in bed, it came to him like a flash that just preceding his illness he had permitted the change of glasses, and that he had overlooked some ocular symptoms since. He at once sent for his old spectacles, put them on, and speedily recovered the health he has ever since enjoyed.

Authoritative medical science, expert diagnosis, organic pathology and official ophthalmology are daily becoming more and more ridiculous. Ignoring and sneering will not avail. Malcorrected ametropia, especially of certain kinds, will, in a large number of cases, bring its inevitable suffering and injury, despite the prejudging, the ignoring, or the sneering. In a thousand different ways millions of patients are being wronged as was this patient. The sooner this is recognized, the sooner will medicine escape

from its blundering. But it will not escape until the lay-world of patients is convinced and arouses the attention of its mistaken professional advisors. The tragedy is becoming strangely acute, in that the profession does not dream that the lay-world, to a surprising extent, is becoming convinced.

In the year 1901, I had for six years been prescribing glasses for the wife of the patient whose history I have just given, the last note of my records then specifying "perfect comfort" with the lenses last ordered. To save the trouble and expense of the long journeys from the distant home-city, this patient concluded to consult a near-by oculist, and for several years I did not see her. In 1907, I was asked to allow her to visit me for alarming symptoms, mostly systemic.

The following are copies of the prescriptions given by the new oculist:

Sept. 2, 1901:	R. - S. 1.00 - C. 2.00 ax. 50.
	L. - S. 1.25 - C. 2.50 ax. 130.
Aug. 1, 1904:	R. - S. 0.75 - C. 2.75 ax. 50.
	L. - S. 0.50 - C. 1.75 ax. 130.
May 1, 1905:	R. - S. 1.00 - C. 1.75 ax. 53.
	L. - S. 0.75 - C. 2.62 ax. 130.
May 12, 1906:	R. - S. 1.00 - C. 1.75 ax. 55.
	L. - S. 1.00 - C. 3.00 ax. 130.

This last estimate, at least, if not the others, was made *without the use of a mydriatic*. The patient writes:

"I could not wear the glasses, for when I walked on the street things seemed to recede or rush by, and I was

dizzy. I laid them aside and went back to my old glasses. I suspected the results, because the tests were made without drops.

"In December, 1906, I found the old glasses so unsatisfactory that I put on the glasses of May, 1906. After wearing them for six weeks my hand began to tremble. I remember this, because I had a sewing girl February 1st, and could not help her because unable to thread or set a needle. After a while I began to shake and tremble all over, and could not take much exercise. I neglected to say that about January 15th I was attacked by rheumatism. I began to lose flesh—about two pounds a week. My eyes troubled me greatly; I had bad headaches, stiff neck, wakeful nights. Early in May my heart began to beat 140 per minute. My doctor, who was watching my diet and exercise, said, 'eyes.' So the third week in May I went to the oculist, who was just leaving town for a few days, and, recognizing the necessity for prompt relief, he sent me to another oculist. This one "dropped" my eyes and looked at them through a cork-screw, or something that made my eyes feel they were being pulled out. (Ophthalmometer?) He found such a great change in a year that he would not prescribe until he should see Dr. ——— in consultation. So I waited several days, and finally had the consultation. My oculist (who didn't understand the eye-puller) looked awhile and said (with the second oculist's assistance) the prescription was O. K. I got it filled and put the glasses on the 30th of May. I walked four or five

miles that day. (Walking did not seem to tire me, though the flesh quivered all over my body most of the time.) The next day I went to my summer home; that was Saturday. Sunday morning I awakened with a terrible and stunning, thumping headache; this continued Monday and Tuesday. Mother thought I ought to return to the oculist. I said Dr. ——— told me I'd have an awful time getting used to the glasses, and I'd have to stick to them. I came home the 8th of June, and kept feeling shakier and weaker, and finally I wrote to the second oculist. He replied that probably the trouble was that I needed other lenses for close work; that it was probably reading and sewing that troubled me. In fact, I had done absolutely no reading or sewing. He said he had sent me "grabs" to try. They came; I put them on and read for twenty-five minutes, I was then taken with nausea and had three nervous chills, which lasted nearly an hour, with weeping, etc. I went to bed, and was down with nervous prostration for two weeks. This was on the 21st of June. As soon as possible I went to my summer home. It took two men to get me on the train on July 5th. I could not get into a phaeton, go upstairs, or even rise from a chair alone. For some time I could not walk fifty feet. On the farm I improved a little, and as soon as I could I went to see you, and as soon as I got your glasses improved wonderfully immediately. I had lost ninety pounds, but am now gaining."

The prescription of May 27, 1907, signed by the two oculists, was as follows:

R. —S. 1.00 —C. 3.00 ax. 30.

L. —S. 2.00 —C. 2.00 ax. 135.

Under a mydriatic, on July 16, 1907, I found:

R. —S. 2.25 —C. 2.00 ax. 35 —20/20.

L. —S. 2.75 —C. 2.50 ax. 145 —20/20.

I had no record, of course, of the acuity of vision with the glasses ordered during the six years the patient was away, but as I got perfect acuity with the lenses of July 16, 1907, the vision with far weaker ones of two or three weeks before must have been very poor indeed.

I have gone into the details in this case, because, as the discriminating refractionist will see, they are of the greatest significance and interest, and in the following illustrative ways—note:

1. *The Development of Myopia from Improperly Corrected Ametropia.*—All Europe, as we know, is ruining its most precious asset—vision—by ignoring ametropia and its inaccurate correction. To a little less extent, we of the United States are guilty of the same criminal blundering. If anyone is ignorant of the facts concerning the *pari passu* increase of myopia with each grade and year of study, the facts are easily learned. Medical men, and especially oculists who do not see its significance, should hasten to secure different minds by means of an immediate and new Avatar. The chief sins of the

ophthalmologists as regards myopia are, refracting without a mydriatic, thus overcorrecting the myopia, and failure to rightly correct the astigmatism. Myopia is thus absolutely created by the very men whose duty and function it is to prevent it. In 1900 my patient's myopia, during the six preceding years, had actually lessened, and I left her with perfect acuity, stabile ametropia, and the best of health, wearing:

R. —C. 2.00 ax. 60.

L. —S. 0.62 —C. 2.75 ax. 120.

Much stronger myopic lenses were next ordered by her oculist, and such overstrong corrections were continued until the whole nervous and nutritional system was profoundly morbidized, ninety pounds of flesh lost, and ruined health and collapse well under way. And then 2.25 D. of incurable myopia had been added in the right eye and 2.12 D. in the left. It will at once be objected that in about six weeks the myopia seemed to have grown inordinately (prescriptions of May 27, 1907, and of July 16, 1907), and that there was thus undercorrection in the first, so that, here at least, there was not the usual error of overcorrection. This is true, in a way, but the facts bring into view another phasing to clear up the mystery. This is the fact of great loss of flesh:

2. *Great Decrease of Bodily Weight Increases Myopia.*—This fact I had long ago pointed out in a special article on the subject, utterly ignored, of course, since then by the profession. It tends to, and almost always succeeds in

elongating the eyeball, so that such great decreases of fat increase myopia and lessen hyperopia, just as the increases of fat correspondingly lessen myopia and increase hyperopia. There are several explanations of the fact that the first of her two oculists had produced her increased myopia by the first years of overcorrection, and that the two had undercorrected it six weeks before her visit to me. These are:

- A. Refraction tests, made at first without a mydriatic;
- B. Fear of fully correcting in the late stages of the disease, because of newly-aroused recognition of the danger of overcorrection;
- C. Failure to remember that great decrease of bodily weight *per se* increases myopia;
- D. Simply incorrect refraction—*e.g.*, astigmatism, lessening by one diopter in six weeks, and the myopia increasing by 1.25 D. This was probably due to reliance upon an ophthalmometer, which the refractionist had just been absurdly tempted into buying. Even the patient "saw through it," although the oculist did not.

3. *The Resultant Development of Varied, Alarming and Profound Functional Systemic Diseases because of bad Refraction.*—There can be no doubt that the whole cycle of degenerative diseases was directly and solely the consequence of eyestrain. A too modern neurology and a too antiquated ophthalmology may smile cynically, but the smile is their undoing. For them one cares

naught, but multitudes of their patients, and an unsuspected number of medical men (not the "leaders" and "professors") are awake to the truth. This woman had spent much money, had come near to the most awful of tragedies, had suffered deeply, had consulted in vain a number of the best general physicians (who could find no cause for her frightful condition), had lost ninety pounds in weight, and was terrified at the outlook. All these things almost instantly disappeared with proper glasses—the constant, amazing tremor of the entire body, the headache, the tachycardia, insomnia, the pseudo-rheumatism, and all the rest. "I am very glad, indeed," recently writes her husband "to state that her general condition has steadily improved, and since you refracted her last I have heard no complaints."

A STRANGE AND ILLOGICAL CASE
OF SUICIDE.

CHAPTER X.

A STRANGE AND ILLOGICAL CASE OF SUICIDE.¹

The friend with whom to-day you are talking, and who seems as happy and right-minded as can be, may to-morrow commit suicide. If one thus acting was a good and successful man, to all appearances healthy, honored, and beloved by all who knew him, with no scandal in or about his life, and if in addition he was a man of learning and power, the mystery of his act seems insoluble. Such a case occurred recently in a large city of the Middle Western States, and I have been at a good deal of pains to gather all the details concerning the man possible to learn. I shall epitomize these and seek to learn the reasons for his self-murder.

If a man has been unhappy in love, unsuccessful in business, or disappointed in his ambitions; if he has any inherited or incurable disease; if he is an immoral man; if he has any depraved tastes; if he is a drinker or has a drug-habit; if he is a sullen or vengeful man, the subject of violent emotions—if there is any abnormal or morbid trends of body or mind—then we may ascribe the suicidal act to such a cause; and especially if there is any intimation that it was the cause. But where every friend,

¹ *Medical Standard*, November, 1907.

relation, and fact connected with the death, testify strongly against the existence of such a possible cause, then we must seek elsewhere more closely for an explanation.

An explanation there must be, and students owe it to the community to find it. Men do not kill themselves without reason or excuse of some kind. The human mind does not contradict the first law of life except for a sufficient and logical reason. If practical psychology or theoretical mental science for that matter means anything, it means that effect must have a cause, that a great, peculiar, and powerful motive must incite an equally great and strange act.

Not the least hint of such a motive is suspected by the hundreds of the friends, admirers, or relatives of the man whose case I have investigated. He was at the height of a most successful, learned, powerful, and fortunate career. He was widely known, honored as are few in his great calling, beloved by all who knew him, trusted with power by thousands who may not have known him personally, happy-minded, of equable and genial temperament; and, so far as any could judge, or at least so far as any did judge, he was healthy in every way. His physician, whom I have closely interviewed, also testifies to this. Those who were nearest to him ascribe his self-murder to "overwork" —that old fetich to which so many ills and so much illness have been ascribed, and which, in default of a sufficient reason, has been charged with all the illogical sins we cannot find out or will not confess.

Of itself, without a big deal of helping, overwork never killed anybody, or made him kill himself.

On the day that this man shot himself he wrote to a relative that he had often planned to do so before, but had postponed it on account of others. The plans for his death were carefully made, and the disposal of his body, etc., were clearly ordered in gentle, kind letters found upon his body. He wrote that he was happy in the coming rest and peace, and he softly answered in advance the remonstrances that would be made by the kind pleading that after all each must be the judge as to his own way of "escape." He begged that his correspondent would remain and do the duty that remained.

INFLUENCE OF EYESTRAIN.

Soon after the publication of the accounts of the suicide, I received a letter from a distant patient saying that she had read my paper on suicide due to eyestrain, and that she had thought of it while reading of the suicide of this man whom she had known well over 20 years previously. Because when they were attending the same college they used to go skating together, and even then he suffered greatly and constantly with pains in and about his eyes.

I had already set about my own investigation and strangely enough in the same mail with my patient's letter came one from two medical men saying that the man had nothing the matter with his eyes. He had been examined by an expert oculist, and he now testified that no eyestrain existed. Experience has taught me to trust

the woman rather than the oculist. A man who has severe eyestrain at 25, especially if a great reader and writer, has twice or thrice the strain at the age of 46—particularly if he does not wear glasses!

INSOMNIA.

Slowly and carefully, but thoroughly, I pressed closer, and got nearer the facts. Finally I was on the trail of Insomnia, of which, caused by noises, he complained more than of anything else; I learned also of periods of silence, with depression, following the loss of sleep, but without much or any complaint of these or of other symptoms.

Much questioning brought out that at least for some fifteen years before his death, in addition to almost continuous reading and writing during the day, the man was accustomed to read after going to bed by the light of a lamp at his bedside. This is a pernicious habit even for sound or well-glassed eyes, and is bad even when one has a good light behind the head and reads sitting well-propped up in bed. But when in the prone position, and by means of a lamp at the side of the bed, and without g'asses, and at the age of 45 or over—it is, indeed, slow self-murder and is fatally sure to end in some sort of tragedy. It should be added that this patient habitually took little or no exercise, devoting himself absorbingly to his literary and erudite work.

It is pretty certain that the periods of depression, not marked and rarely spoken of, followed upon and were

caused by the insomnia. They lasted for several days and occurred about once a month. The man was not a drinker, and smoked only a cigar or two a day. He did not complain of headache or indigestion, and he ate normally. These are important data, for in the absence of headache or digestional troubles eyestrain is very prone to produce, often with inflammation of the eyes themselves, psychic symptoms, and particularly insomnia. He often had "red eyes" in his later years.

OCULAR HISTORY.

The case history of the oculist shows that at 43 years of age he had at least one-half a diopter of simple hyperopic astigmatism in each eye. Here, just here, lies the fatal blundering: the oculist tested the eyes without paralysis of the accommodation, and at the beginning of presbyopia this is utterly inexcusable. If he had so much manifest astigmatism, he probably had more concealed; and hyperopia also was present; and there was no certainty as to the axes of astigmatism; none as to muscle-balance; none as to the anisometropia, and the incorrect glasses ordered were not worn; and no warnings whatever were given as to the injurious effects of eyestrain upon the mind and health of astigmatic presbyopes.

True it is that the man did not even wear his glasses for distance, and was not known to do so for reading and writing. He did not like them or to use them, speaking sneeringly of them at times. At the time of his death and when doing the greatest amount of "near work" with

his eyes, he therefore had for such work, something like two dipters of compound hyperopic astigmatism uncorrected. If one who is reading these words will wear glasses artificially producing this defect in his own eyes, and then read for a dozen or more hours a day, thus cursed, he will either soon go crazy, go to a hospital, or go to buy a revolver wherewith to make an ending of his agony.

The photographs of the man in the last years as compared with those taken previously show significant signs of eyestrain in the hollowing below the lower lids, etc.

There is no doubt in my mind that this man committed suicide because of eyestrain. One may say it is only an inference—if one will. All reasoning is by means of inferences. In many cases self-murderers plainly enough indicate the existence of eyestrain in their symptoms or complaints. In many others this ultimate cause, although present, is unrecognized. But the failure to recognize it on the part of the patients and the public is the fault of the medical profession. Upon these neurologists and oculists who ignore and deny the evil effects of eyestrain, and who do their work incorrectly, rests an awful responsibility. Pooh-pooh only increases it.

“THE PESSIMIST”—ADDED TESTIMONY
IN WAGNER’S CASE.

CHAPTER XI.

"THE PESSIMIST"—ADDED TESTIMONY IN WAGNER'S CASE.¹

BY WM. ASHTON ELLIS.

Somewhat thus did Wagner ultimately interpret to himself "friend Schopenhauer's" grand inspiration, as may be seen in *Parsifal* and the Bayreuth essays. But since it was Sch.'s Pessimism and specific antidote therefor that first attracted him, the time has come to seek a physiologic reason for the pessimistic trend in both these geniuses.

In the third volume of Dr. Geo. M. Gould's *Biographic Clinics* (1905) one reads: "Without a thought of the class to which they may belong, make a list of the literary pessimists of the last century, and another list of the optimists. The pessimistic or gloomy writers and artists were almost entirely great sufferers from eyestrain and from its result, migraine. They were, for instance, Nietzsche, the two Carlyles, de Maupassant, George Eliot, Wagner, Tchaikowsky, Chopin, Symonds, Tolstoi, Heine, Leopardi, Schopenhauer, Turner, Poe, and many others." To some of these, including Wagner,

¹Extracted from Ellis' *Life of Richard Wagner*, vol. vi.

Dr. Gould has devoted special studies, but not as yet to Schopenhauer; so that in the latter case I shall have to grope my way alone.

The reader will first want to know, however, precisely what is meant by "eyestrain." Excluding those less frequent cases in which coarser muscles are at fault—the muscles that roll the eyeball up or down, to right or left, whose imperfect balance is evidenced by squint, "cast," etc.—the "strain," as now generally understood, is experienced by a delicate little ring-shaped muscle situate just behind the iris (that colored portion of the eye whose opening constitutes the "pupil.") Now, this little annular device, called the "ciliary muscle," is attached to what may be termed the "setting" of the "crystalline lens," and attached in such a manner that it can adapt, or "accommodate," the lens's shape to certain requirements of vision. Here you see at once a possibility of much exertion being thrown on this tiny muscle; but you will want to know the closer nature of those "requirements."

For this you must realize that the *distance* of the lens from the retina (the special receiver of the optical image for transmission to the brain) is a fixed quantity in every individual eye—the eye having unfortunately been supplied with no mechanism, similar to that of our field-glasses, for shortening or lengthening that distance.¹

¹At least, that is the opinion at present held by ophthalmologists. It may ultimately transpire, however, that our friend the ciliary muscle has a *limited* power of drawing the lens backward and forward, in addition to its power of compressing it—which latter power, again,

Consequently an eye that is longer than the average from front to back will possess clear vision for *near* objects, but be unable to see those beyond a certain distance quite distinctly; should it be handicapped *in no other way*, it has no natural choice but to rest content with a limitation it has no means within itself of overcoming. On the other hand, the ciliary muscle affords the normal eye a means of evading the disadvantage of that said fixed quantity; it enables the eye to bulge its lens into a more highly convex form at will, and thus to obtain a more accurate focus for near objects, in addition to its normal sharpness of vision for those at a distance. If too long continued, that simple operation of itself may tire the eye; for, as Gould well says, "civilization puts the eye to a function for which it was not created or habited. The success of the animal or savage depended on sharp distant vision; that of the city-dweller usually on sharp near vision." But now comes the graver trouble: "It is impossible for Nature, who never made anything perfect or symmetric, to make the eye an optically perfect instrument, either organic or functional. Helmholtz said of the eye that if his optician were to send him such an instrument he would return it for alterations. The least optical imperfection may endanger the organism and prevent success, and the efforts of compensation,

may possibly be exercised rather in the direction of *allowing* it to revert to a more spheroidal shape by reducing the state of tension of its suspensory ligament. So far as concerns the intermediate causal links, the rationale of the process is still *sub judice*; but the broader correlation of cause and effect is established by thousands of proofs.

especially in civilization, become as painful as are all excessive and continuous efforts, and even more so, because of the delicacy of the mechanism and the infinitesimal nature of the stimulus.

The antechamber of the eye, to wit, is closed in with a kind of watch-glass to protect its inner works from the slightest speck of dust or other intrusive foreign matter; this watch-glass, let into the "white" of the eye, is scientifically called the "cornea." Now, if the cornea were mathematically perfect in its curvature, the operation of that tiny ciliary muscle would be simple enough; but supposing the cornea even a little 'out of truth"—or "ametropic"—the ciliary muscle has to perform a highly complex act: in the subconscious endeavor to secure perfect definition of near objects, it has more or less successfully to squeeze the lens into an anomalous shape that shall exactly neutralize the error of corneal refraction. Thus the labors of our tiny ciliary muscle are infinitely increased by its conscientious efforts to meet a continual exaction of visual perfection from a physically imperfect instrument; we (*i.e.*, the imperfectly equipped) have asked it to fulfill more than its bond, and if our demands are enforced beyond a certain duration (individually variable) it revenges itself on our general nervous system: "It is when the neutralization of the ametropia is possible and is attained with intense though perhaps unconscious exertion, when the eye does not suffer or lose clearness of vision—it is precisely then and then alone that appear the reflexes of dyspepsia, bilious-

ness, headache, etc.”¹ Such is the gospel of astigmatism, now gaining European converts every hour, but first preached by an American, Dr. S. Weir Mitchell, in the early 'seventies, and thus summed up by him in 1876:

What I desire to make clear to the profession at large is:

1. That there are many headaches which are due indirectly to disorders of the refractive or accommodative apparatus of the eye.

2. That in these instances the brain symptom is often the most prominent and sometimes the sole prominent symptom of the eye troubles, so that, while there may be no pain or sense of fatigue in the eye, the strain with which it is used may be interpreted solely by occipital or frontal headache.

3. That the long continuance of eye troubles may be the unsuspected source of insomnia, vertigo, nausea, and general failure of health.

4. That in many cases the eye trouble becomes suddenly mischievous, owing to some failure of the general health or to increased sensitiveness of brain from moral or mental causes.

Now let me apply these principles to Schopenhauer, so far as that is possible with a man so extremely reticent, save indirectly, about his bodily condition.

In Vol. II of *Parerga* our philosopher devotes a special chapter to denunciation of street-noises (whip-cracking in particular), the personal application whereof is unmistakable in this sentence: “Eminent minds have always rebelled against any kind of interruption or disturbance, above all by noise.” From a letter of his, to be presently cited, we happen to know that Schopenhauer had been

¹The quotations in this and the preceding paragraphs are all from Dr. Gould's first volume of *Biographic Clinics* (1903).

all but stone-deaf of one ear, "as result of an illness," for nearly thirty years ere that remark was published, and about the latter period was "gradually and gently losing use of the other"; consequently it can scarcely have been overalertness of the auditory organ itself that inspired him with his abhorrence. On the other hand, Dr. Gould has observed an "extreme sensitiveness to noise" in many of his eyestrain patients, and remarks on its presence in Carlyle, who was by no means musically inclined.

Turn back to *Welt* I, § 18, and you find a passage which may possibly date from the other extremity of Schopenhauer's literary life, though it is more probably of composite origin: "Every stronger affection of those organs of sense [sight, hearing, and touch] is painful, *i.e.*, goes against the will, to whose objectivity they also belong.—Neurasthenia (*Nervenschwäche*) is shewn when impressions which ought to be merely strong enough to make them data for the understanding, attain a degree of strength sufficient to move the will, *i.e.*, rouse pain or pleasure—much oftener pain, though partly of a dull, vague nature; not only are single sounds and strong light felt painfully, in this condition, but even a general indefinite feeling of hypochondriacal malaise is occasioned." The construction of this last sentence is none of Schopenhauer's clearest, but that "im Allgemeinen krankhafte hypochondrische Stimmung, ohne deutlich erkannt zu werden" is really a notable anticipation, so far as it goes, of the latest etiology of obscure nerve-

troubles. Moreover, after the "negative" character we have already seen assigned by him to pleasure, it hardly needs the testimony of his biographers,¹ to convince us that he was peculiarly sensitive to pain himself, like all our sufferers from astigmatism.

Passing to the record of his habits, we learn that he took brisk walking exercise for two hours every afternoon, "no matter what the weather"—another astigmatic sign. "That these men lived to ripe old age," says Gould, "that their health improved as they grew older, that when very old most of them could outwalk all the young men [Sch. certainly did]—all this shows that their hearts were not organically diseased, that they were essentially physically sound, and that their ailment was truly functional. The demand and ability to carry out life-long physical exercise also points to an overplus of nerve force and an undeniable necessity of draining the surplus innervation to the large muscles of the body. But it also points more surely and clearly to the fact that only by this means could the eyes be rested and the source of reflex irritation shut off. That, or something like it, appears the plain philosophy of the 'nervousness' of eyestrain sufferers, and their absorbing need of physical activity. The greater number of literary men and intellectual workers show no such uncontrolled necessity because they have no eyestrain. Whenever one has such

¹The English reader unacquainted with German could not do better than consult Helen Zimmern's *Arthur Schopenhauer* for particulars of his life, though it was published (Longman's, Green) just thirty years ago.

patients, or reads of such men being great walkers, look out for eyestrain" (a hint to golfers, by the way). Connected with this is the limitation of Sch.'s working hours, for the best part of his life, to a mere three hours each morning; a most salutary restriction, on our hypothesis, but otherwise quite inconceivable with a brain of his caliber and power. Consider his literary output, remember that it covered close on half a century, and you will realize what the world thus lost.

The extent of his positive sufferings the world will never know, but we have a very serious indication of them, casting a lurid light on his pessimist world-view, in two letters from his mother and sister. The one, written in 1807 to a lad of nineteen, declines to have him live with her, for reason of "your ill-humor, your complaints of things inevitable, your sullen looks . . . Your laments over the stupid world and human misery give me bad nights and unpleasant dreams"—allowance must of course be made for the mother's selfishness and superficiality, but any such moroseness in a youth of talent is incompatible with nerves at ease. In the other letter his sister cannot understand his flying from the cholera in 1831 (Berlin), "considering how unhappy you also feel, and how often you have wished to flee from life by laying violent hands upon yourself." However, speaking of his typical "astigmatic" geniuses, Gould tells us: "One heartrending result of their exhaustion was the desire or fear of death, or of worse than death, insanity . . . The peculiar nature of

eyestrain, the rapidity with which it produces morbid reflexes, and is relieved, easily explains the facts of the coexistence and alternation of exhaustion and irritation. They are mere aspects of one neural and psychic fact."

We read that Schopenhauer thought glasses "noxious to the eyes, and avoided wearing them as much as possible" (Zimmern). That is quite *de règle*; "All except one or two"—says Gould, of his detailed inductive cases—"inheriting the traditional and ridiculous prejudice, affected to scorn spectacles. For the rest, none except one could have obtained scientifically correct ones, and only in his old age." Our philosopher was consequently right in practice, if not in general theory, since he died about a decade and a half ere scientific spectacles began to be invented anywhere. Being so short-sighted as unintentionally to "cut" acquaintances in the street, had his defect of vision been mere myopia he would have derived practical benefit from the simple, ready-made biconcave glasses then procurable: as he found that they actually *hurt* him, just as a ready-made shoe hurts an abnormally-shaped foot, the obvious inference is that his myopia was complicated with astigmatism. In support of this last contention I may adduce his letter written at the age of 55 to Brockhaus, in which he begs that the second edition of *Welt* shall not be published in one volume, since "the print would be so small as to earn the name of eye-duster, and frighten many people off, especially the elderly." That the latter remark is "two for himself," we may judge on passing farther down,

where he upholds a certain font of type as model: "these letters are easier to read than the narrow tall ones now in vogue"—precisely the astigmatic teasers—whilst he also objects to the "now customary machine-made vellum paper," undoubtedly because of its irritating gloss. Had his eyes been ordinary "short-sighted" ones, he is unlikely to have raised so many apt objections, for they would not have found the slightest difficulty with the smallest or spikiest type.

But that was written at the very age when the normal "presbyopic" change—the last flickering efforts of the ciliary muscle to overcome the resistance of a slowly rigidizing lens—must have been causing him most trouble. Contrast it with a letter to Frauenstädt of 13 years later, when the full establishment of presbyopia had placed the punctilious little Ciliary on the retired list: "I run like a greyhound still, am in excellent health, blow my flute almost daily, swim in the Main of a summer, have no ailments, and my eyes are as good as in my student days" (here comes the bit about his hearing, of. 44 *sup.*). With final release from the continual drag of, attempted "accommodation" his spirits have gained an elasticity unknown in earlier life, a cheerfulness reflected in his later writings; and as for his myopic eyes being "as good as in his student days," with a low degree of astigmatism—sufficient to produce the earlier symptoms—any slight loss of definition in the near visual image would scarcely be noticed, as it had come on so gradually, even if the lens may not have been left with a

permanent compensative flexure. What Gould says of Herbert Spencer may be applied in every syllable to Schopenhauer; his "‘rejuvenescence’ in old age, and his belief that ‘nervous troubles may be assuaged with advancing years,’ are but the philosophy of the presbyope who has never heard of the relief that always comes to the eyestrain patient when accommodation effort has become impossible, or when presbyopia has been fully established."

Lest the above should be accounted a mere "American notion," before passing to the now proven case of Wagner I may mention that the third volume of Gould's *Biographic Clinics* includes reprints of articles by two eminent English ophthalmic surgeons fully endorsing his general deductions as a result of their own independent professional experience. One of these Englishmen thus sums up his "conclusions" from hundreds of cases treated by himself: "(1) That eyestrain is the cause of a large proportion of headaches, often of a very aggravated character. (2) That various other neuroses are met with in association with headache, and among these may be mentioned the following: Mental depression, nausea, indigestion, vomiting, insomnia, giddiness. (3) That relief is afforded to these conditions by correcting the error of refraction, which can be ascertained only after careful examination . . . (5) That frequently no complaint is made of defect of vision," etc., etc. The fifth conclusion, taken in conjunction with the second, is of the very highest importance, more particularly when

dealing with purely inferential cases such as those of Schopenhauer, Spencer, etc., and originally with that of Wagner.

The second English ophthalmologist—pardon the mouthful, but the profession here rejects the simpler designation “oculist”—after premising that his article will confine itself to “those slight degrees [of refractive error] which I find are so constantly overlooked, and yet whose influence upon the nervous system may be so far-reaching and disastrous,” proceeds: “Slight errors of refraction, dating as many of them do from birth, seem to have a very gradual injurious influence upon the nervous system, similar to the dropping of water upon a stone, and those who are the subjects of them are usually of the highly-strung, sensitive temperament Owing to this slow action, and to the fact that in many cases there is little or no impairment of vision, their injurious influence often goes on for years, and the cause of the troubles to which they give rise is quite unsuspected.” In further course of his paper—read before a medical society, remember—we arrive at the tragic suggestion:

Were I to assert that error of refraction is responsible for a large proportion of the suicides occurring daily, and that it is a potent factor as a cause of insanity, that assertion would probably be held up to ridicule and dismissed as absurd. Many things appear at first sight improbable, but on reflection much less so, and I will ask you to reflect for a few minutes on this subject. When you have seen, as I have done in a very large number of cases, the effect of uncorrected errors of refraction on the nervous system, you will

be struck by the great frequency of the occurrence of such symptoms as insomnia, great irritability, extreme depression, impaired memory, difficulty of concentration of thought, lack of self-confidence, apprehension, weariness and exhaustion, and a general want of stability of the nervous system. I have tried to illustrate error of refraction as the cause, and the correction of it the cure for these troubles. How often the patients have told me they have been on the verge of suicide, and have used the expression that they were afraid they were going out of their minds. It is quite conceivable that suicide would be more likely to occur in those who had been for a long time enduring the mental torture which results from the conditions I have enumerated, and which has rendered life a burden.

As a link between this appalling thought—the truth whereof is certainly self-evident—and the main subject of the present chapter, let me quote from an essay on “The History and Etiology of ‘Migraine’” in the same volume by Dr. Gould himself:

But the profoundest evil is the dejection and disgust with life that follows persistent use of astigmatic eyes. It is noticed in all the best literature of migraine; ill-humor, petulance, morbid introspection, irritability, proceed to melancholy and pessimism in the extreme cases

Wagner resolved to commit suicide many times when driven to desperation by his awful suffering. The effect of this mental torture and gloom in great literary workers is the almost single cause of the “literary pessimism” in an age of rugged vigor, luxury and national expansion.

Now to point the moral in our hero's case, which at last is a very complete one.

It may be remembered that in the third volume of

this *Life* (issued Spring, 1903) I came to the conclusion that Wagner's constantly-recurring "malady was nothing deeper-seated than megrim, alias migraine or 'sick headache'" (iii, 410-2). But what might be the actual etiology of "Migraine" itself, I could no more tell my readers than I could discover in medical treatises or ascertain from pumping the various "practitioners" with whom I came in contact. Then, on my repeating my unsatisfied query to the editor of our leading medical weekly, he offered to lend me a book just sent him for review, as it would probably allay my curiosity. That book, first of an eventual series of volumes, was entitled "BIOGRAPHIC CLINICS: The origin of the ill-health of De Quincey, Carlyle, Darwin, Huxley and Browning," its author being Dr. George M. Gould, of vast ophthalmic experience in Philadelphia. After devouring this book, which threw an entirely new light on my query, I boldly wrote to Dr. Gould for his opinion on the case of Wagner, which to me seemed to show marked similarities to the five prominent cases he inductively had diagnosed as eyestrain. From the brief particulars supplied by me, and notwithstanding my caution that Wagner was generally supposed to have remarkably "strong sight," Dr. Gould at once inferred that this case was on all fours with those five. He then proceeded to work it out in detail, at hand of the biographies and collected letters, finally embodying his research in a long article published simultaneously in the London *Lancet*, August 1, 1903, and the *Journal of the American Medical Association*. The following

year, having meanwhile garnered eight additional literary cases—George Eliot, G. H. Lewes, Parkman, Mrs. Carlyle, Herbert Spencer, Whittier, Margaret Fuller Ossoli and *Nietzsche*¹—Dr. Gould brought out a second volume of *Biographic Clinics*, in which his Wagner article was reprinted, of course, and thus made more accessible. For the full material of inductive proof, covering a dozen pages of small type, I therefore refer my readers to that book itself, confining my excerpts to more salient points in the summing up:

It should be noted that Wagner was a “delicate boy,” “a pale slim little chap” liking others to read to him, “preferred rambling,” “roaming about the country,” an excitable and fitful sleeper, shouting and talking in his sleep, etc. But the intellectual and keen mind soon realized the sense of responsibility, and the boy picks up his school work equal to the best from his ninth to his fourteenth year, but at 25 years of age his features have “the look of wanness and suffering.” All this is an excellent description of children who suffer from eyestrain, and can be duplicated from the case records of ophthalmologists many times.

At about 30 years of age an excess of writing work overtaxed his nerves so much that he “often sat down and wept for a quarter of an hour at a stretch,” and he was a constant victim of a feeble stomach. At this time an extreme amount of work with his pen [*Tannhäuser*] brought on the idea of sudden death which in the same circumstances reappeared many times during his life and threatened to drive him to suicide. The medical man warned him

¹To these he since has added J. Addington Symonds and Taine, in vol. iii (1905), Balzac, Tchaikowsky, Flaubert, Lafcadio Hearn and Berlioz, in vol. iv (1906). Vol. v, just to hand (1907), deals with no celebrities, but is none the less instructive.—N. B. Publishers: Blakiston's, Philadelphia, and Rebman, London.

against work, fearing "the determination of blood to the head," and ordered leaves of absence for three months, etc.¹

With each increment of added accommodation-failure things go from bad to worse every year, until at the age of 35 years Wagner feels "too old" for undertaking his greatest art-work. Depression and suffering, "broken-downness," always follow near work with the eyes, and especially so in winter, his "mortal enemy," when vitality was always lowered, because there was more confinement in the house and hence more reading and writing. A hundred statements grow ever clearer and clearer that writing and reading are becoming more and more impossible, produce greater and greater suffering, and that after each opera, poem, or literary work the ill-health is more tragical. Finally, the "nerves of his brain are so overwrought that the writing is reduced to two hours a day, instead of five or six as formerly, and the writing of a few lines of a letter sets him in violent commotion." As all ophthalmologists instruct their patients, so Wagner found by experience that he had frequently to interrupt even his two hours a day of eye-work. Every job of composition or writing "takes much out of him" and he has "to rest it off." Headache, sleeplessness, the "working by spurts," "with long interruptions," a hundred such expressions occur, and the fear of death, the longing for it, or the resolve to seek it, is constantly reappearing.

Wagner's clearest symptom was "sick headache"; migraine, megrim, hemicrania; nervous headache or bilous headache,²

¹"As I write this a patient comes in bright and happy and healthy who two months ago was the absolute reverse of these things, and whose life had been made as miserable as that of Wagner and from the same cause. In his melancholy and suffering his greatest danger had been suicide. Great nerve specialists had drugged him to stupor or had 'rested' him nearly to death." (Dr. G.'s footnote.)

²Elsewhere Gould refers to "the relationship of Wagner's ocular and digestive symptoms," whilst the opening chapter of the book under notice—a chapter headed "Eyestrain and the Literary Life"—remarks that "*The Digestional Reflex*, next to insomnia and headache, was the most pronounced and constant symptom of the fourteen patients [Car-

are other names for this terrible affliction. It causes a large number of other symptoms and is itself of an infinitely varied type, according to the kind of near work required and the kind of organism of the patient. I have had thousands of patient with this disease, and 99 out of every 100 were cured by spectacles. That sick headaches often disappear at the age of from 50 to 60 years is due solely to the fact that [completed] presbyopia makes eyestrain impossible. That the wrecked nervous system may sometimes go on exhibiting the symptoms after the exciting and direct cause has ceased, is a truism not only of medicine, but of common sense.

Concerning the prevalent belief that Wagner did not "wear glasses,"¹ despite his description in the old Dresden police-warrant (*Life*, ii, 419), Dr. Gould remarks: "It is of no consequence whatever. Any spectacles he could get would not have neutralized his eyestrain." As to the supposed impossibility, see lower; but that common belief is itself confuted by reliable evidence, since one reads in course of reminiscences of the later 'seventies contributed by Baron v. Seydlitz to *Die Musik*, Nov., 1901: "His famous black-velvet cap, when not in use, always formed a mat for his spectacles.

lyle, Wagner, etc.] and of nearly all it was the most crippling and dangerous." Another symptom, much heard of in Wagner's case, is accounted for by Gould in the same way: "He also suffered all [?—see cap. III *nf.*] his life from an intercurrent affection, erysipelas, which is a disease dependent upon denutrition. There can be nothing in medicine more certain than that eyestrain causes denutrition, and nothing more certain than that Wagner had terrible eyestrain. See also Appendix.

¹True, a Vienna caricaturist had represented him at the conductor's desk with the *Tristan* score before him, an open snuffbox in his hands, a huge muffler embracing his chin, and his nose largely bespectacled; but caricaturists are scarcely responsible people, and the skit is signed "1886," three years after Wagner's death.

He could not abide pince-nez; as I wore a pair, he tried to mock me out of it . . . and advocated spectacles. 'But it is so easy to mislay one's spectacles,' said I; 'Why, I can always find mine at once: they rest on my cap.'—'Yes—but your cap?'—'Na, I can see that at any distance. No, no, Seydlitz, you have only one fault, and that is pince-nez.'” Besides establishing the fact of a *moderate* degree of short-sightedness, this simple little tale most convincingly proves that Wagner did wear spectacles in later life, indoors, and thus throws unexpected light on a brief passage in his *Public and Popularity* essay of 1878, "The reason why people in olden days had manifestly clearer heads, surely is that they saw more clearly with their eyes and had no need of spectacles." (*P.* vi, 71.) If for "saw more clearly with" one partly substituted "did not overtax"—which is the obvious intention of the context—the whole secret would be explained; but the insight itself, so plainly drawn from personal experience, was far in advance of the physiological tenets of that generation. Let us use it as bridge to a physical fact of high significance:

All through the latter part of Wagner's life he had one symptom, one of those which physicians call "objective," one that is alluded to, so far as I know, by no written word. In speaking to a great musician who knew Wagner, I mentioned this symptom, when he broke in with, "Of course! I had often observed the fact, but thought nothing of it!" This symptom, which all of his physicians also ignored, comes out in most of the later photographs and the portraits, especially in those of Lenbach, the realistic painter.

The left eye is turned out and up. (Consult the portraits herewith reproduced.¹) Some American oculists call this defect "hyperexophoria." In the effort to drag the eyelid away from, and above, the pupil of this eye, it will be noticed that the forehead is arched and wrinkled in concentric curves—an appearance noticed in many such patients. In the pictures in early life this combination of heterophoria and strabismus is not shown, because it did not exist. It had been overcome by strain, if it existed, and the strain had produced its effect² . . . This turning of the left eye upward and outward is, as oculists know, a result of ametropia and especially of astigmatism and anisometropia. It was a relief of eyestrain, an effect rather than the cause of it. This evidence presented by the portrait painter and the photographer of Wagner would not be needed by the expert oculist to prove the fact of the cause of his lifetime of awful misery. It adds the demonstration needed to convince general physicians and intelligent laymen.

To the unprejudiced mind the case may be already upheld as complete. But there are those whom no inductive reasoning, no argument from the analogy of a thousand similar experiences, can *quite* convince; they smell a rat, and ask for positive proof of the particular instance. Quite unexpectedly, that positive proof in Wagner's case is now available:

In April, 1904, eight months after D. Gould's *Lancet* article and just after the appearance of his second volume, I had occasion to write to Edward Dannreuther

¹ From the frontispiece and p. 208 of H. S. Chamberlain's *Richard Wagner*, "by the courtesy of Messrs. Dent & Co."

² "Even in the later photographs the ocular defect is not always shown, chiefly, probably, because he was able by intense effort to overcome it and to secure 'binocular fixation' . . . The vertical wrinkles between the eyes are also proof of eyestrain" (Gould's footnote).

(since deceased), and in course of my letter made brief allusion to the new theory of Wagner's ill-health. Dannreuther answered me: "Wagner *was* astigmatic. I took him to the Critchetts when he was staying at Orme Square [with E. D., May, 1877]. After a long examination by both father and son, they produced a set of glasses for special purposes which proved satisfactory." A couple of days later: "I cannot say at what part of the day or after how much work Wagner complained. He was making a clean copy of Parsifal for the King—other than this, I know of no work (besides the writing of a few letters to the Bayreuth people) that he did in London . . . Messrs. Ross of Bond St. made the glasses. He certainly was troubled with dyspepsia. As to retching, I have heard of such a thing, but *never* saw a trace of anything of the sort. I never heard him complain of headache" (*vid. inf.*).

Thereupon I wrote to Messrs. Ross and Sir Anderson Critchett, begging for further details. From Messrs. Ross no information was procurable at all, as "unfortunately our old registers do not go back anywhere near the date which you mention." Sir Anderson, on the contrary, most courteously supplied me with the following particulars (April 16, '04): "You have already heard the broad facts from Mr. Dannreuther, so I think there cannot be any harm in my giving you a few details. The great composer complained to my father that he was suffering from severe frontal headaches, insomnia, and inability to work for more than short periods without

distress. At my father's request I tested and examined Herr Wagner's eyes, and found that in each he had a diopter of myopic astigmatism. He was both astonished and delighted when he saw music through the spherocylindrical glasses which corrected his error of refraction, for the notes, lines, and spaces were seen with a cleanly cut definition which up to that time he had never known. After his return to Germany he sent us several kind and grateful messages, and the assurance that the unpleasant symptoms had been much relieved. In the ardor of composition the glasses not infrequently came to grief, and I was amused to receive a request that I would order *six* pairs of spectacles to be sent to Bayreuth."

That *absolutely* settles the larger question. However, as it leaves the said "objective symptom" unaccounted for, I recently troubled Sir Anderson again, and he has kindly replied to me: "With reference to the other points you mention, I feel sure that the degree of astigmatism was the same in each eye, *but the vision of the two eyes was not identical*,¹ though there was no very marked difference. I remember that after Herr Wagner had looked at some music for a few minutes through the glasses he remarked that they enabled him to focus his eyes with less effort.—Expert opinion will doubtless vary respecting the extent to which the error of refraction exerted a sinister influence in the life of the great composer, but none can deny that it may have been an important factor in the troubles to which you allude.—

¹I take the liberty of italicising this important clause.

I am convinced that I have given all the data correctly, for I naturally took a special interest in so illustrious a patient, and the essential facts of the case are indelibly impressed on my memory."

Thus we know for certain now, that pronounced astigmatism existed at the age of 64 in Wagner's case, therefore must have existed for many years previously, and possibly since childhood; whilst we may pride ourselves on the fact of a great English ophthalmologist having been able to remedy its optical disadvantages, and relieve at least some of its other long-standing symptoms, by scientific "correction" even in the earliest days of that branch of the science.

Well—our nurses used to ask us how many "wells" make a river, but it's a very useful cue, so Well, again: "One shrinks from parading his own clinical experience"—says Gould—"but each day of sixteen years, and many thousands of patients, have convinced me that eyestrain is the almost sole cause of the awful disease sick headache, that it causes a vast deal of so-called biliousness and of dyspepsias of many kinds, and that correction of eyestrain often relieves these troubles suddenly and as if by magic. I frankly confess that despite all pondering over the fact, and study of the physiologies, I am in doubt as to the mechanism. In a general way and usually the head is an inhibitory organ to the so-called vegetative or unconscious processes of the body, but eyestrain is such a peculiar disturbance of cerebral function that one doubts if it is essentially an exhaustion

and depletion, or an excitant and irritation . . . But facts, accurately observed, precede philosophies, and sufficient unto the day is the evil thereof."

So we will not attempt to explain *how* this seemingly trivial deviation from symmetry of one organ of sense, albeit the most important of them all, can affect the whole body and through it the mind, but accept its malign influence as a proven fact, and by that influence explain the somber view of things in general which frequently surprises us in so buoyant and energetic a nature as Wagner's. "Many times in Carlyle's life a similar shuddering seized him"—says Gould (for the last time)—"and Wagner contemplated suicide many times. The tortured mind saw no other escape from the misery which haunted it with overuse of the eyes. Yet naturally these men were lovers of life, and even cheerful-minded. Even Carlyle was not entirely a pessimist, and his natural faith and hopefulness were constantly breaking through the gloom which use of his eyes threw over his mind."

Of Wagner that is perfectly true. When in tolerable health and comparative freedom from worry, no one more enjoyed a hearty laugh; but the works of Schopenhauer, a fellow-sufferer from eyestrain, fell into his hands at the very time when everything conspired to make him gloomy, and when he was taxing his eyes to *their* utmost, first with his own music (*Walküre*) and then with that of others (London). Small wonder if he found their darkest pessimism congenial, just as it is small wonder if he recog-

nized at once their author's overwhelming power. Later on he will find "some points for amendment in friend Schopenhauer's system" (Venice Diary, Dec., '58), still later that Pessimism though an excellent corrective, is not the sole alternative to Optimism. To the end of his life, however, he will reap that comfort from these mines of wisdom which can be drawn by those alone who bring to them a sympathetic heart and a brain with something in it.

THE COMMON ORIGIN AND NATURE OF
“BLIND SPELLS,” PETIT MAL, FAINT-
INGS, SWOONINGS, COMA, “PSEUDO-
EPILEPSY,” EPILEPSY, MIGRAINE,
ETC.

CHAPTER XII.

THE COMMON ORIGIN AND NATURE OF "BLIND SPELLS,"
PETIT MAL, FAINTINGS, SWOONINGS, COMA, "PSEUDO-
EPILEPSY," EPILEPSY, MIGRAINE, ETC.¹

I am told that, observed and studied with care and precision, there is no case of organic or infectious disease that is truly "typical" or exactly like that of another. Let it be admitted, however, that many run a course so roughly resembling others, that they may, in a general and crude way, be called typical. Immediately that we turn to functional diseases, the case is absolutely different, and instead of classifying any two cases as alike or typical, we are compelled to acknowledge that, with any observation to be named scientific, the symptomatologies and courses tend to differ as much as possible instead of resembling each other. But despite the divergences and variations, it is becoming recognized by analytic and studious minds that large groups of seemingly most unrelated diseases may have a common origin, and are essentially of the same nature. That this intimate relationship has not been discovered and traced out by medical men supposedly scientific is due primarily, of course, to their unscience—that is, their want of the

¹*Lancet-Clinic*, October 19, 1907.

closely observant and philosophic, or analytic type of mind. Secondly, it arises from the amazingly morbid noninterest of the profession in the origin of functional diseases. Thirdly, and specifically, it comes from the almost universal neglect of thoroughness in taking histories of patients and in finding out the facts they conceal, have not thought of, or that they suppose not connected with their chief complaint of the day. The common history-taking and symptomatology existing in the books and case-records of hospitals and private practitioners is usually meaningless and worthless. In truth, it does not generally exist at all. Do one-half of those now practising medicine take notes at all, and properly classify, index, and keep track of their cases? No. Do one-half of the remainder do so in any way serviceable to themselves or another? Certainly not. It is generally only a few questions, a quickly made diagnosis, a few orders, and then the rest is left to memory, which, for science, is absolutely nonmemory.

I had been in practice for years before I began recognizing that patients did not tell the most of their related symptoms willingly, and that my history-taking was as much of a farce as that of my teachers. The vast importance of slowly, softly, patiently, cunningly, thoroughly working into the details of the past history, of getting at the biographic clinic, of eliciting the confession of symptoms long past and seemingly at present unrelated, is a great art; and it is a greater necessity, if we would understand all and if we shall cure all. Often,

and often again, I have been able to get at the facts only after years have passed, and by questioning I have learned of the symptoms existing prior to the prescription of glasses, and which disappeared with the continued wearing of glasses. Thus slowly and by studying over the old records, and by massing together the indications from large numbers of similar cases, have I reached unifying conclusions, and found that many of the most apparently divergent and unrelated symptom-complexes of different cases have a common origin and nature. For instance:

“BLIND SPELLS.”

This is a term that is every day repeated by patients in the oculist's office—what, exactly, are they, and what causes them? By the term, if one is careful to inquire narrowly, every patient means an individual, peculiar, ever-variant happening. Under cross-questioning most patients will admit that they are not at the time and for the instant really blind. It is not an absolute blackness or total inability to see anything or something, it is only a temporary obscuration, dimming, or clouding. Things “waver,” are hard to see, or rubbing or “batting” the eyes is necessary to see clearly, etc. Perhaps 25 percent of patients mean *scotoma scintillans* by the term, and that is a revelation of itself of the frequency of this symptom. Again, scintillating scotomas are of as many kinds almost as there are patients, running, in different cases, from flashes of light, central dark spots, rings, waverings,

crinklings, obscurations to one side, etc., etc., up to the extreme fortification spectra, with rainbowed or aurora-borealis-like wavings. Sometimes these last for only a minute, sometimes for a half-hour. Sometimes there are no after-effects, and sometimes there are sequent headache, weakness, sickness, etc., of different intensities and periods of time. By "blind spells" patients have explained that they mean such tiring and extreme effort to see while reading, writing, sewing, or otherwise working that they must stop awhile. Sometimes they mean that an object looked at, the threads in sewing, the ball in the air, etc., disappear, and in a second or two again reappear. Sometimes, once more, they mean that they cannot go on for quite a time, must change the work, get up and walk about, or something like.

I have had a number of patients who, in using the term "blind spells," meant it most literally and accurately. A recent instance was in a woman who has had such attacks for about fifteen years. In Florida, where light was more harsh, they increased alarmingly. She has been hours and days without vision, unable to walk alone, etc. Then the vision would return and normally, and all go on as before. The phenomenon was caused by reflex eye-strain. And lastly, they mean, hiding the fact from their own minds and from yours, that they, as an individual, "stop altogether," that is, they lose consciousness for little or for long, partially or entirely. They are, if knowing it (and more know it than we or their friends suspect), secretly worried by it, and no one can guess how

many bear about with them the haunting, disconcerting and tormenting grief that they have some inherited, inexplicable, incurable malady of the brain or mind. Thus this large class of sufferers from "blind-spells" passes on and over into the class afflicted with some of the thousand ever-variant and atypical symptoms bunglingly classed under the head of

"PETIT MAL."

The predominant and characteristic symptom with these patients is temporary loss or lapse of consciousness and purposive action, but without falling or extensive muscular spasms. The bodily functions hold the organism still, the psyche stops, seems disconnected for a short time, and then the nexus is again established, when all goes on as before.

SWOONINGS AND FAINTINGS, COMAS AND
SEMICOMAS,

are more extensive, sometimes more intensive examples of the same failings and stoppings of functions principally psychic, but not always so, the physical and physiologic losses of control varying greatly in extents, degrees, and lengths of time. Extending from within this class, and occupying a great stretch of the long space between it and "typical" epilepsy, dovetailed into both classes, is that nondescript and infinitely varying class of patients bunched together under the meaningless terms—

PSEUDOEPILEPSY, HYSTERIA, HYSTEROEPILEPSY,

and dozens of others, repeated only by psychiatrists and neurologists, and understood by nobody in the world. But the rootings and beginnings of the symptoms of these pitiful ones, upon investigation, will usually be found back among phenomena which I have described, and among the functional "migraines," headaches, nervous and nutritional disorders, of similar natures and origins with them.

Epilepsy, of the pronounced or chronic kind, is the most extreme, the last, the most hopeless of the diseases of this general class. To the temporary loss of psychic control of all others is added only one almost accidental and not differentiating factor—an excessive and unregulated overflow of innervation to the bodily muscles during the lapse of psychic control or consciousness. Not for an instant, however, should be ignored the fact that the "pseudoepilepsies," etc., merge into the "typical" variety by innumerable and indescribable gradings and varieties. There is individualism everywhere, and the hundred subclasses that might be made would far outnumber the extreme variety. Even in the extreme, individualism is always present, and to be studied as such. Each person in the world differs, psychically, and physically, even in the chemical construction of his protoplasm, from every other, and his disease must differ from that of every other.

In passing it may be noted that the tremors of many

kinds and afflicting many patients are often, in essential nature, probably not unlike the diseases described. And, lastly, there is a class of sufferers, more numerous than all others combined, the subjects of

MIGRAINE.

It is a word that well deserves killing, because its history is absurd, its use more absurd, the ignorance of its cause and nature most absurd. No two persons give it the same meaning, and everybody misunderstands everybody else when it is used. Historically or etymologically it means half-headedness, or headache on one side of the head; as commonly there are associated other kinds of cerebral and psychic disorders and suffering; as in a majority of cases there is also some digestional or nutritional disorder; and as in a large number of this majority there are crises with nausea or with vomiting, followed by a sudden "clearing-up" process—it follows that this disease is the most atypical, as well as most common, of functional disorders. It links itself with the others mentioned above, and is demonstrably of the same fundamental nature as they because of its four most evident and chief characteristics: Periodicity (ever somewhat variant, however!); its functional and not organic origin; the weakening or loss of normal control of the mind and body; the sudden return to normality and health after the crisis.

"Migraine," comprising headaches of a hundred kinds, neuralgias, headaches with or without insomnia,

and other cerebral and psychic affections, with or without dyspepsias and nauseas and vomitings—"migraine," the commonest of all diseases, is in the majority of cases either the initial stage leading to the other diseases enumerated, or it accompanies them, or it is replaced by them. "Migraine" is normally the first and easiest and commonest reaction of the organism to the pathogenic factor which may beget any other of the types associated with them, or degenerate into them. I have reported the case of a patient who from early childhood had had fainting spells, headache, and vomitings nearly every day of her life; some of the thousands of swoonings lasted for hours, and she was thought to be dead. She was cured in a day by a pair of glasses. I have had many thousands of "migrainous" patients, typical and atypical, with all kinds and complications and intensities of correlated symptoms. I am sure that 98 or 99 percent. have been cured. Those who do not cure the vast majority of such patients do not know how to diagnose and prescribe for ametropia.

And directly or indirectly, at first hand or by intermediation of a secondarily-produced cause, the vast majority of the diseases I have classified are due to eye-strain, either to ocular function or ocular malfunction. The mechanism seems to me this:

All the functions of the inorganic universe are rhythmic, pulse-like, or wave-like. Of that there is no question. It is just as true, also, of the world of life and of organisms. Every normal function of the human body

is an illustration of this need of reaction following action, rest following work, relaxation following contraction, etc., etc. When the law is broken or overborne, physiology passes into pathology. It is most commonly broken in the human organism which compels the continuance and long-persisting innervation and contraction of a muscle or set of muscles. That is the single thing the god of physiology cannot do, and whenever our stupidity or necessities or ignorances mercilessly compel the attempt, there is disease in the making. Almost all functional diseases can be traced to this source, and surely almost all those classified in this article. There is one function of our organism which allows, begets, or conditions all others—vision. The brain comes out to see, and the eye is brain substance told-off to the duty. In all other organs the brain manufactures the organ from outlying material. Embryologically, the creation of the eye long precedes the making of the muscles—that is, self-motility is impossible without precedent vision. *Ubi motus ibi visus*. Therefore it is that vision is the method of making and evolving the higher life-forms, the preceding and causing and governing condition of all muscular action. Now comes the reason of the modern trouble of vision in the fact that prior to civilization all near vision, that within fifteen inches of the eyes, was rare and of short duration, effected by a momentary contraction of a muscle, and the constant and all-necessary distant vision was carried out without contraction of the ciliary muscle. But for millions civilization now demands an almost uninter-

rupted innervation and contraction of this muscle for most of the hours of the day. And for a large majority of these ametropia compels the constant tension or contraction for every second when looking purposively at anything near or distant. So closely is vision bound up with every cerebral and neurologic function that this demand of persisting innervation is certain to set up morbid action first and usually in the brain, and then in any outlying organ or function which the brain may control. This is the explanation of the enormously varying and widespread incidence of eyestrain reflexes in any or every chief part of the organism. All the morbid results of eyestrain are merely the cries of the suffering servants of cerebrum and body against the physiologic impossibility of too permanent or continuous contraction of a muscle.

There is one other chief and great source of functional morbidity and disease reflexes, and, strangely enough, although distant and seemingly unrelated, it turns out to be caused by ocular function. There are about fifty millions of Americans who have lateral spinal curvature. The slighter the degree, the greater are the reflexes, strains, and sufferings. When the condition becomes extreme, organic, with coalescences, rigidities, etc., then the morbid effects lessen or cease, and if secondary and resultant diseases and losses of reaction have not gone too far, health or absence of suffering may be reached. But that absence of suffering is conditioned upon the cessation of strained, persistently

innervated, continuously laboring muscles, ligaments and organs. And thus while unphysiologically laboring at the never-to-be-renounced task of holding the body erect and of preventing increases of the curvature, there must be and are morbid results which account for a goodly share of disease. A great deal of epilepsy and of some other diseases is undoubtedly due directly to eyestrain, and I suspect more is due to lateral curvature of the spine. But lateral curvature of the spine is caused in the vast majority of all cases by certain peculiar axes of astigmatism, or by the habit-curvature of the spine of the morbid writing posture. And this morbid posture is caused by right-eyedness and the necessity to see the letters being made by the pen, especially with the right eye.

To epitomize, compulsory continuance of muscular contraction or of other function, without rhythm or rest, is the source of most functional disease. Other muscles and organs may be thus called upon to act unnaturally and impossibly, but the ciliary muscle of the eyes is the most abused and most intimately bound up with all cerebral activity, and the greatest of all sources of functional disease. Next to that the spinal functions, muscles, and ligaments in millions of cases of functional scoliosis (also indirectly of ocular origin) are compelled to persistent strain and function, and thus become prolific sources of pathogenetic action. Combined, these two morbid causes account for most of the diseases mentioned. That functional diseases precede and beget organic diseases is a

truism as evident as it is ignored. Scientific spectacles stop morbid function of the eyes, and thus prevent all the evil results that are produced by that malfunction. The proper placing of the writing-paper on a proper desk prevents the morbid writing posture.

VISION AND SENILITY.

CHAPTER XIII.

VISION AND SENILITY.¹

Patients every day come to the oculist's office saying "What is the matter with our eyes nowadays? My father is over 60 and reads without glasses." Or, "Grandfather has got his 'second sight' now, and sees better than he ever did," either miles away or for reading. The professor taking his Sabbatical year, or the old pensioned teacher of physics or of psychology tells of his "cornea flattening" and of his "second sight"—and so on. As gently as may be, in order not to hurt any feelings, one has to explain that there is no such thing as second sight, that the cornea does not flatten, that the vision either for near or distance is not as good in those of 60 or over as it was when they were younger, that the pride of believing glasses are not necessary for the old is vanity that costs eyesight and life—and so forth.

Pondering over these things, the oculist comes to perceive that there is a most intimate and causal relation of vision and old age, or, what is at least the same thing, a too early beginning of old age; that, in truth, the habit and fact of over-prolonged senility is almost wholly due to ocular defects and failures. In the first place, the

¹*Interstate Medical Journal*, October, 1907.

pride of the glassless person of over 50 years of age in his ability to see is often a childish pride, bearing pathetic witness to the desire to hide from his own mental eyes the very fact of his growing old. It testifies to the unconscious admission of the vital relation of good sight and good health, for good vision is the *sine qua non* of health, activity, and youthful feeling. Scientific tests always show that this pride of the old is without basis of fact, and that their vision is in one or both eyes highly subnormal, either for near or for distance or for both. The most overweening of my patients, the one most contemptuous of "the modern oculist crank," did not, at 70, know that he was blind in one eye (from eyestrain-choroiditis) and had between one and two diopters of astigmatism in the badly damaged fellow-eye. He had lived a life of insanitary, almost insane, torment, fighting against the hateful spectacles. Such as he will not and cannot understand that seeing is largely a psychic fact, a perceptual education, with some aid from the eyeballs, and that the poor little they do see is well supplemented by memory. They can read, what little they do read, with the ocular hints of vision less and less accurate, cunningly guessing at the shapes of letters, words, or rather sentences, reading headlines, and, as regards distant objects, enormously astute in the guessing; and also as marvelously unsuspecting that the little seen is far more a memory than an ocular photographing. Moreover, such as they cannot suspect that the little actually seen, the wretched photograph really focussed

on the retina, is done at an absurdly useless expense and waste of ocular functions and powers. It quickly brings on disease of the eyes, and a needlessly lessened visual power—a shortening up both of visual ability and of the old age which is itself so largely caused by poor vision. Thus even the most seemingly innocent of prides and the most excusable of vanities needs the sobering and normalizing correction of fact and science to eliminate injuries and blunders.

Ubi motus, ibi visus est is a happy epitome of the preponderant role of vision in evolution. All free motility of any but the lowest organisms was dependent upon the preceding and *pari passu* elaboration of the visual organ. Every step of developmental progress has been possible only by the aid of vision and its forerunning instrumentality. When one thinks of it this is self-evident, but neither Darwin nor his followers have spoken of the fact. The exclusion of the unfit has been in the majority of instances the exclusion of the visually unfit, and the survival of the fit has been as largely the survival of the visually fit. It has become a truism of science that "the ontogeny repeats the phylogeny," the individual epitomizes the history of the race, and yet every embryologist knows that the human fertilized ovum shows the construction of the eyes under way by the third week, and by the fifth week the eyes begin to move forward from the side of the head. But it is not until considerably later that there is any differentiation of muscular tissue in the fetus. The startling significant fact must also be

borne in mind that unlike any other organ of the body, the retina and optic nerve are an outgrowth of the brain. The eye is thus part of the brain; the brain comes out to see! long before there could be self-motility therefore, the brain and mind foresaw that the organism could live and move only by means of vision. And how long this seeing is before "quickenings," or spontaneous movement! Infinitely greater than that of creating any other organ was the difficulty of forming and upholding the eye. This is first because it must be transparent, and more because it must react to stimuli hundreds of millions of times more slight than, for instance, those of the ear.

The enormity of these difficulties is emphasized and exhibited by the fact that the creator and upholder of the eye has found it impossible to maintain the perfection of the ocular mechanism and function beyond the age of 45 years. With this age his difficulties, always existing before, always only half-conquered, become so great that they rapidly interfere with and cripple the entire organismal validity of the human being. Even in present-day civilization few, very few indeed, of the world's hundreds of millions of inhabitants can get the little help that would prevent this crippling; but before spectacle-lenses were known, presbyopia, cataract, together with conjunctivitis, keratitis, and a dozen other eye diseases, were cooperating to produce that renunciation of labor and the social functions called old age. The habit of giving up energizing work and useful social functions was established in countless past ages when the eye became

unfitted to guide such work. Thus was formed the custom or habit of senility, the renunciation of the youthful and virile offices, and the acceptance of exclusion, of resignation, of waiting for the end. Institutionalism arose and somewhat lessened the hardness of the decree for a few ("The King is dead, long live the King!"), while religion, parental affection, and advancing civilization united to make it still less bitter. But all modifications, and all forms of disguised pensioning systems altered only slightly the fateful fact. Even now the employes of our railway systems, discharged pensionless because of the age-limit, disappear in a few years—two or three, it is said, on the average—and the death certificates err or lie in setting down the cause of death. The tremendous rise in the numbers of suicides occurring from 40 to 55 is startlingly significant. Not to be forgotten is the fact that most suicides are unknown, and are willed; they are not instantaneous, but slow. "My work is done," "I am laid on the shelf," "of no more use"—the renunciation of the will to live, the failure to grasp the means of good living—such are the dominant causes of suicide, open or concealed. Therein lies the real tragedy of vital statistics. And the *causa causans* of the uselessness and renunciation has been and still remains the paralysis of opportunity and energy because of the evils, direct and indirect, of bad vision.

What is the first great ocular difficulty which the maker of the eyes had to meet? Plainly to make and keep transparent the ocular structures from the front to the

back of the eye, from the skin of the cornea to the last (pigmented) layer of the retina—transparent as the best glass, they must be, all these highly complex vital tissues—permeable to the short octave of the incredibly delicate ether-waves called light. There are more than a dozen most cunning devices for shading the retinas and keeping them sensitive to these infinitesimal stimuli. In former ages diseases of the conjunctiva and cornea were vastly more common than now, and yet to-day there are some 50,000 Americans who are blind and mostly because of these difficulties in keeping up transparency. The few that escaped transmitted to us their good fortune and ability to escape. A sigh for the fate of those who did not escape!

But in the past not one of the countless billions could avoid the tragedy of presbyopia or old-age sight; it overcame many, the hyperopic and astigmatic of high degree, it crippled them all their lives, and sooner or later it choked them to menial tasks or unmerited suffering; and it came upon them most relentlessly at 35 or 40. Those with more normally shaped eyeballs it caught, every one but a few myopes, at 45 or 50, and stopped all handiwork, all the intellectual tasks, all reading and writing, almost all basket and pottery making, weaving, arrow-chipping, shooting, effective fighting, etc. And the few near-sighted were prevented from hunting, games, athletics, etc., upon which uncivilized lives and success so largely depended. No person who has seen even moderately well during active and adult life,

can see as well after he or she is 45 and 50 years old. Nature could not make a crystalline lens, or "the accommodational system of the eye," transparent and at the same time perfectly functional beyond the age of 45. This lens must be nourished without the presence of red blood-corpuscles and without any nerve connections with brain or body. This was the difficulty which was really an impossibility for the biologic mechanic. To that difficulty the effectiveness of all must be more or less subject and limited; and most were absolutely sacrificed to it. It has been one of the controlling factors in establishing "the average length and expectation of life of the insurance and mortality tables. Only a moderate and fair imagination and sympathy is needed to translate it all in terms of personal suffering, sociology, and civilization. It formed the precedent and the sufficient excuse for the custom and habit of recognizing the age of about 50 as that in which "age," "old age," or senility, was full upon the worker. Dependency, at least, had then to be accepted in some form, and to some degree. Despair and renunciation soon followed. The ludicrous ineptitude of Osler's, "A man is as old as his arteries,"¹ has been exposed by Minot. And could anything, for an amusement-loving scientist, outdo Metchnikoff's uproarious theory of the too great size of the large intestine in man, whence fermentation of the too-long retained food, the fetch of "autotoxemia," and the sour-milk gospel. Sour milk is thus solemnly and literally to

¹Cribbed without credit from Casalis: *on a l'âge de ses artères*.

prevent old age, and is to take the place of medicine, religion, and philosophy, as a world-supporting, death-abolishing god, a divinity of lactic acid, instead of any philosophy or all religions. But Professor Muhlman—these pseudo-scientists are always professors!—outdoes Professor Metchnikoff, and says that old age is due to the diminution of the surface of the body in proportion to its bulk. The logical result is that the smaller we are, the longer we will live! The Pillars of Hercules have been reached! Minot, who smiles audibly at these grins of an expiring pathology, does not suspect, does not even mention the chief cause of old age—ocular defects and failures—and hastens to argue against the belief that old age is a disease or due to any disease. He confounds two entirely distinct things, the anatomic changes of senility and the mental, moral, or dispositional ones. And he also confounds two things which need as emphatic a sundering, the lethal old age, and the needlessly early assumption of old age. Death none may hope to escape, but its coming is preceded only a brief year or so at most by the organic diseases which directly demand it. The living death which custom has made common, the death of mental and moral energy, the false old age of a score or more of years after 50—that is a different affair. And that is due almost wholly to visual old age, a kind now easily and wholly obviable. Herein is the solution of the mystery set forth in these suggestive words: “As the organism rises higher and higher in the scale, old age becomes more and more marked, and in

no animal is old age perhaps so marked, certainly in no animal is it more marked than in ourselves."

The crippling of ability, the wrecking of health in the young and in adults caused by astigmatism, hyperopia, and anisometropia, occurs in a large minority of all human beings. The proportion rapidly rises with every grade of civilization, with every step of advance in intellectual progress. The average length of life is shortened by it, the total effectiveness of working life tremendously impaired. Those who nowadays by lenses or by absence of morbid ametropia happily avoid the misfortune, go on to the age of 45; but then comes the fate which none may escape, except possibly a few hundreds in a million of American citizens; appears now presbyopia, or failure of accommodation, added to all the other ocular ills. Even for the vast majority of Americans there is yet no hope, because of the blind bigotry and inhumanity of the ophthalmologists and so-called leaders of the medical profession. Hence the inevitable result, cataract. If loss of accommodation and half-blinding were not in past ages a sufficiently incapacitating blow, the total blindness of cataract was supremely decisive. Not to be forgotten is the fact that in early times cataract was far more common than now. How common it now is in oriental countries! All early medicine was mightily concerned with this sad disease. The dramatic and tragic nature of it riveted attention, and exercised a powerful influence in fixing the emotions upon the further uselessness of living,

both in the minds of the sufferers, and in those, usually thoughtless and cruel, who had to support them. The logic was terrible, but it was unanswerable, from either point of view—in such cases presbyopia had long rendered life of little or no use, and cataract was the death-sentence.

Comment is suggested by the double significance of the word virility. The procreant ability of man is not stopped at 50, or 60, or even 70 years. Men have become fathers at 80 or even 90. This fact is an illuminating gloss upon the accepted belief that old age or the supposed period of ineffectiveness and life-renunciation begins at about 50. Make old age accept the helps it may have, root out the superstitions and customs begotten of failing vision, root in the new growth of belief in an energetic last series of clear-seeing years, and the sad grin of resigned stoicism becomes an amused and benignant smile. One may not run quite so swiftly as formerly or strike so heavily, but in old age, as well as in young age, all right wisdom and life teach that "the race is not to the swift nor the battle to the strong."

And I gather that, as pertinent to woman, the lesson, despite the seeming negative, holds quite as well. Both the facts and the superstitions of old age were established while women were practically enslaved and did all the labor of life, especially the labor that required near vision, and which was prevented by the disabilities of bad vision coming on at 45 or 50. It is most significant that her sensitive organism, prematurely aged by work,

cruelty, and suffering, should find the ending of its reproductive ability exactly at the time of the great ocular failure we call presbyopia, or "old-age sight." Freed from overwork, the enslavement, the degradation, the cruelty, one already sees the average length of woman's reproductive life, even of her total life, increasing, and youth chasing adulthood to the last confines of a later and a real old age. For despite all the foolish persons that ever senilely prated of and encouraged the uselessness of the senile, the man of 45, of 50, of 55, and even 60, is, except ocularly and by reason of ocularly-created superstitions, most admirably capable of original and splendid work. He may not be as good an advertiser of himself, may not be as effective a hunter after honors and sinecures as he formerly was, but he is at least ripe for the guiding, and the helping, and the judicial government of progress. Take from the world the discoveries and labors of those over 45, and the youngsters would be having a far less enlightened and happy life. Such flippant upstartism, of course, cannot learn and will not be taught that scientific spectacles, (sneered at as "glassing" and "bespectacling") prevent almost all the evils of eyestrain and ill-health in adult life, absolutely annihilate the evils of presbyopia, and prevent the rise of at least nine-tenths of the cases of cataract. The right correction of ametropia is in truth the most important and revolutionizing need of medicine and the unrivalled condition of social progress. It will do away with more hospitals, extinguish more suffering, lengthen the term

of human life more than any or all solutions of the mysteries so avidly sought in all the laboratories. Scornful of functional pathology, worshipping the grinning ghost of anatomic and experimental pathology, the laboratory "expert" seeks the postmortem table, and makes the dead-tissue slide, while neglected functions and the faraway sources of disease endure and pray for a coming scientist with living emotions, with sympathetic desire to prevent the cadavers from coming to his "dead-house."

Old-age, however unavoidable before our own generation, is now absolutely unnecessary. It was in truth a long-drawn-out, over-prolonged valetudinarianism, a pathetically slow method of dying. It is not the way of logical nature, such lingering over the inevitable. Animals, every one of them must outfight or outrun, must keep eye and foot and perception keen, alert up to the minute of the coming of swift and kind death. So should, and so may, men and women hold intact their plasticity and capability, sure foot and nimble wit, up to the last year of their living. A vast deal of praise and nonsense has been written concerning the gain in mere length of living, of "the increasing duration of human life." But we all know this is mostly mere brag, and does not touch the heart of the matter. It is the quality and kind of life which concerns right-minded folk, not continuance of respiration. "Men have found out," said an astute observer, "Men have found out the art of engrafting old age upon themselves before their time."

Dr. Minot has admirably shown that the period of decline of old age, the old age of the body, is not only not rapid, but that it is the period of life in which decline is slowest. Is not this luminous truth a demonstration that with the removal of a single cause of this slowest decline, the actual and necessary old age leading to death, may be magnificently postponed? Nothing could be clearer.

And here comes to recognition the fact I emphasize: this namely, that the needless old age, the assumed senectitude, is really the period of the now unnecessary decline of mentality—of psychic ageing. But psychic ageing is a product of past social customs born of defective and ageing vision. The psyche itself is most largely the product, the epitomized results, the composite photograph of an infinite number of past visualizations, of normal and healthy seeings. So the morbid psyche is also largely the concrete effects of morbid seeings. Old age was begun too early because bad seeing stopped the doing and being of young age. The truest, the greatest greatness, gathers with the gathering years, when to right vision and beneficent doing, is added the mature judgment and the large logic which ripened experience alone can give. Thus every good year added to the used and useful life and opportunity of the elders avails in geometric rather than arithmetic proportion.

It is peculiarly noteworthy that civilization, religion, and sympathy have not cut off the useless old, have not, as in savage and animal life, swept them off the board in reckless haste. If a forefeeling of coming relief and cure

did not motive the patience, the effect is the same, for the annihilation of needless senility by scientific lenses is now possible. Old age, "the disease of Anno Domini" may henceforth be progressively done away with; it should begin not earlier than 70 or 80 surely, and should be limited to the last year or two of life. Hereafter, let no one ever speak of an "old gentleman" or an "old lady," if the epithets are not to the taste of the sufferer. Long ago one thus insulted, with indignation blurted out the truth: "There is no such thing, sir, as a *fine old man*!" Was his sarcasm not the speaking of the old-time kind of old age, that which was but the reaping of youthful indiscretions, the harvesting of adults sins, the eating of the stale bread of 50 years of selfishness? Chevreul would not have so answered, even at the age of 100 or over. Instead he wrote: "Que voulez vous que j'écrive sur votre album? Je-vais écrire mon premier principe philosophique, c'est par moi qui l'ai formuli, c'est Malebranche. On doit tendre avec effort a l'infalibilit, sans y pretendre." In the presence of such centenary wit and wisdom one should be ashamed to die even at four score and ten. And he should be much more ashamed to show the faltering insecure step, the nonseeing gaze, the crystallized prejudices, the wait-on-me dispositions of fashionable old age. Of what value several decades of vain renunciations, ignorant wantings, "anecdotalage," sinecure-huntings, duty-evasions, pitiful dependencies, too frequently heretofore called old age? It is no more kind than it is necessary, this old-time humoring of those

hurrying too conspicuously to assume senility. There was, and there still remains a vanity of senility which at last is but the senility of vanity. The custom may now be done away with of devoting the last twenty or more years of life to useless breathing, futile regrets, empty reminiscences and prolonged dying. Let us pack the whole pother of them into one, and that the last one!

THE MYTH AND THE MYSTERY OF
“MENIERE’S DISEASE.”

CHAPTER XIV.

THE MYTH AND THE MYSTERY OF "MÉNIÈRE'S DISEASE."¹

Bibliographical.—The titles of some three hundred books and monographs on "Ménière's Disease" have been listed since, in 1861, the Parisian aurist made his communication to l'Académie Impériale de Médecine. None would attempt a critical reading of all these, but if an emmetropic intelligence should secure a cartload of the more noteworthy and carefully digest them, he would find much to amuse, more to edify, and most to warn. Especially if he is an oculist! But thousands of physicians have, more or less carefully, read much of this literature without suggestion either of pleasure, instruction, or admonition; and most certainly but few of the three hundred intended to furnish amusement, enlightenment, or warning. Leastwise to themselves! The astute reader must find the unconscious fun with some grim intrepidity, must fish cunningly for the unintended profit, and must know a dea' more than the writers about pathology, in order to be heedful of decayed signboards at every crossing, silently crying: "*Danger! Look and Listen before Crossing!*"

The Legend Begins.—At the session of l'Académie

¹*Medical Record*, October 31, 1908.

Impériale de Médecine, held January 8, 1861, M. Ménière, Médecin de l'institution impériale des sourds muets, etc., supplied at least an epitome of a study, "sur une forme de surdité grave dépendant d'une lésion de l'oreille interne,"¹ in the following terms:

1. An auditory apparatus, hitherto perfectly healthy, may suddenly become the seat of functional troubles, consisting of sounds of various kinds, continuous or intermittent; these noises are soon followed by more or less deafness.

2. These functional troubles having their origin in the internal auditory apparatus, may give rise to symptoms supposed to be cerebral, such as vertigo, dizziness, uncertain walk, turning, and falling, besides being accompanied by nausea, vomiting, and a state of syncope.

3. These symptoms, intermitting in type, are soon followed by more or less complete deafness, and often the hearing is suddenly and completely abolished.

4. Everything leads to the belief that the physical lesion, which is the cause of these functional troubles, is in the semicircular canals.

In a later communication, published the same year, M. Ménière emphasizes the necessity of recognizing that certain apoplectic seizures are not cerebral in origin, but are lesions of the auditory apparatus, which will be followed by incurable deafness. He supports this view by the reports of five cases furnished by others:

¹*Bulletin de l'Académie de Médecine*, Paris, 1860-1, xvii. I shall not hereafter burden the reader's attention with the usual bibliographic references. They are easily obtained by the serious students of the subject.

CASE I.—A physician, aged 47, for 15 years had had tinnitus, especially in the left ear; deafness of this ear followed, despite all treatment. The right followed the same course. In neither case had there been a sign of local inflammation, no catarrh of the tubes, etc. For three years the disease had been stationary, when, after a day in the open air, the patient, *while reading* [italics mine], was suddenly seized with violent sneezing; upon rising, he staggered and could not walk straightforward. This continued for three hours, when the man went to bed. In the morning, walking was still more difficult, there was a feeling of heaviness or compression in the occiput, a wheeling of the body to the left, a threatened falling, as if the left side was weak, although, in bed, both sides of the body seemed equally strong. Nausea soon came on, with vomiting often repeated during the day; the stomach could retain nothing. There was recovery in a few days of perfect health, although the hearing gradually lessened. The diagnosis was lesion of the internal ear. Six weeks later there was another attack of vertigo, lasting two days, with great weakness, followed by paresis of the left side, with sudden general recovery, but with lessened acuity of hearing.

CASE II.—M. Ménière's second case was that of a physician, aged 45, who had tinnitus, following taking of quinine. Hearing lessened, and by and by attacks of vertigo and vomiting came on, which continued for some months, until finally there were falls in the street. Deafness increased. The general health was finally

completely reestablished, although the hearing was almost lost. There was no inflammatory or catarrhal disease of the ears. The warning is repeated that the agony of belief in deep-seated cerebral disease endured by so many patients with such symptoms may be relieved by recognition of this, their supposed aural origin.

CASE III.—A man, probably middle aged, in good health, swooned *in his office*. Nausea and vomiting supervened; everything whirled about him. Noise in the ears was complained of, and some loss of hearing followed. There was no other discoverable sign of disease of the ears.

CASE IV.—A business man, 40 years old, always *confined to his desk*, in perfect health, swooned while smoking. Nausea and repeated vomiting followed; everything whirled in the room; he was confined to bed for a while, fearing to fall again. Health soon returned, but there was some difficulty in walking. There was violent and continuous tinnitus, and the hearing was somewhat weakened. He could not go to the theater as heretofore, and his life, public and private, underwent a change.

CASE V.—A man, “*encore jeune*,” was seized with attacks of vertigo, nausea, and vomiting. The treatment fashionable at that time (bleeding, purgation, etc.) left the diagnosis “cerebral congestion” (still not out of fashion) doubtful. Hearing lessened, tinnitus was noticed, and unsteady gait, but no ascertainable aural disease existed. A sort of half-faint occurred, the

weakness lasting a few minutes only. M. Ménière and his great consultants, Trousseau, etc., could not explain such a happening, and as hearing was a little impaired, the conclusion was that the lesion was in the internal ear. Science is praised for her magnificent progress in the localization of cerebral lesions. A certain conclusion is emphasized that the affection signalized has no relation to epilepsy.

Note in passing, that M. Ménière makes the following unwarranted assumptions:

a. That these "functional troubles," briefly, tinnitus, have their "seat" in the ear. That is like saying that the "seat" of paralysis of the leg is in the leg, or that the "seat" of headache or any reflex neurosis is in the organ noticeably affected. M. Ménière speaks as if he had never heard of reflex action, physiological or pathological. The human body in health and disease is one vast system of reflexes.

b. This tinnitus is "functional," and yet it is followed by "more or less deafness." The cause of this deafness, he assumes, is a physical lesion in the semicircular canals. As every aurist knows, there are multitudes of patients with tinnitus not followed by deafness. And, as has often been subsequently demonstrated, there have been many cases of both tinnitus and deafness not caused by any lesion of the canals.

c. These functional troubles, assumed without proof, to have their origin "in the internal ear," are assumed to cause other symptoms, "supposed to be cerebral,"

such as vertigo, unsteady walk, turning, falling, nausea, vomiting, and syncope. All of these symptoms, separately, in any pairs, all threes, all fours, all fives, the sixes, and the sevens, often exist without tinnitus, and without deafness, and without any aural symptoms whatever.

d. The lesion of the "internal auditory apparatus" is assumed to be apoplectiform, and yet the "deafness" of M. Ménière's five cases is described as "lessened acuity of hearing" in one, "hearing almost lost" in another, "some loss of hearing" in a third, "somewhat weakened" in the fourth, "a little impaired" in the fifth. And yet he had said in proposition three that "often the hearing is suddenly and completely abolished." The local "apoplexy" is thus assumed, and his clinical cases do not certainly warrant his "suddenly and absolutely abolished." With such a weaving of clinical mal-observation, preformed theory, unjustified assumptions, and reckless logic was the start made.

Epitomes of Case-histories.—The reports of the cases of M. Ménière "furnished him by others" may be simply and correctly, and adequately, given as follows:

CASE I.—A man of 47, who had tinnitus for 15 years, had two attacks of the already universally-known, immensely common, old-fashioned disease, variously called "sick headache," "migraine," "megrim," "hemis-
crania," etc.

CASE II.—A man of 45 had an attack of sick headache.

CASE III.—A middle-aged man had an attack of sick headache.

CASE IV.—A case of sick headache in a man of 40.

CASE V.—A man "*encore jeune*" had attacks of sick headache.

Because the hearing in these cases, not measured or registered before the attacks, was later reported as impaired, the cause is assumed to be apoplexy of the internal ear. But for ages before, millions of patients had suffered from sick headache, with all the symptoms listed, and all about M. Ménière were multitudes of contemporary sufferers from the same disease. The only diagnosis justified by inductive logic and clinical experience was: Sick headache with a continuing sequel of abnormal aural function.

Confusion's Masterpiece.—Besides that of its inventor, the disease has become that of many years and many ears. It is both useless to attempt and impossible to compile an abstract of the confusion ever worse confounded that has characterized the discussion during the last forty-seven years. Assertion has been disproved, contradiction has been contradicted, theories have been set up and knocked down, subterfuges have been exposed, props and even foundations have been undermined—until there is not a statement that can be made concerning the theory of which the exact opposite is not as true. The theorizers have made a sorry mess of it all. Schartz and Grunert in 1895 say that the real nature of the disease is up to now, unknown, and Sugar uses the term, "the confusion of Babel," when speaking of the disease and its exponents and critics. Heerman speaks with sincere

regret when, in 1906, he is compelled to let an old theory drop without having anything to offer in its place.

The Experimental Physiologists as to the Function of the Semicircular Canals.—In the histories of cases there were as many symptoms as could be found, invented, or exaggerated, of vertigo, unsteady gait, swaying, turning, weakness, falling, swooning, etc., and as it was early decided that according to their three planes and the arrangements of the canals, the labyrinth must be the organ of equilibrium, the hemorrhages into it in Ménière's disease, therefore, caused the inequilibrium, the vertigo, the swooning, and all that. The illogic of this logic was ludicrously apparent, the observation blind, the physiology was unphysiological, and the science startlingly unscientific, but that did not, and does not, matter. Thousands of experiments upon animals have been carried out, all without conclusive results. And the vivisection experiments upon man by disease and traumatism, as revealed in the few necropsies, have only added to the mystification. Before Ménière's publication, Flourens, by extirpation of the labyrinth in pigeons and rabbits, had tried to determine the function of the canals, and Ménière found exudate in the case of a girl with symptoms of his disease prior to death. Goltz confirmed Flourens. Breuer's conclusions, confirmed by Mach, opposed those of Flourens and Goltz. Böttcher contends that injuries of the neighboring cerebral organs account for the symptoms, and that the injuries to the semicircular canals are not the cause of the loss of equilibrium.

Tomasziewicz agrees to this, and Baginsky, after many experiments, concludes that the accidental and incidental cerebral lesions cause the loss of equilibrium and the forced movements. Kusselbach confirms this conclusion as a result of experiments on fishes. Lucae agrees, and cites a human case with hemorrhage and inflammation of the entire labyrinth, especially of semicircular canals, yet before death there was not a sign of giddiness, etc. Höges disputes Baginsky's conclusions, and Landois and Loewenberg believe that the semicircular canals are controllers of equilibrium. Brunner thinks that the correctness of the Goltz-Breuer hypothesis is established by the double atrophy of the acoustic nerves, which should produce both deafness and loss of equilibrium. Curschmann confirms the Flourens-Goltschen experiments, although he does not think the canals are the organs of equilibrium. Brunner contends that not loss of the canals, but their irritation, produces loss of equilibrium. The early stages of the disease produce the giddiness which ends with the complete degeneration. Ferrier concludes the canals have a function in hearing. Gellé finds that dizziness can exist for years without any demonstrable abnormality in the labyrinth or ear. Steiner does not find the canals to be the organs of equilibrium. Neither does Ewald. Gallstein says "the hypothesis of the physiologists as to the function of the canals finds no proof in clinical histories," and thinks that cerebrospinal meningitis is the cause of the lesion. Gellé found no effusion present in his necropsies, but did

find sclerosis of the windows, which did not yield to pressure, thus producing a "simulated" Ménière's disease. Pengniez and Fournier think the lesion is not localizable in the auditory apparatus, but is a sign of mental degeneration. Necropsies multiply, in which the severest lesions of the inner ear, necroses of the labyrinth, hemorrhages, etc., have not produced a symptom of the so-called Ménière's disease. Conversely, cases are reported in which a tumor of the fourth ventricle produced "typical" Ménière's disease, the labyrinth being normal. Hensen says that after a study of the literature and ten years of physiological experiments, there is no adequate basis for conclusion. Eckert emphasizes the impossibility of decision by physiological experiments, and of carrying out a *pure* experiment, so that there is a chaos of contradictory methods, results, and opinions. Foster thinks the canals are not connected with the sense of hearing, but serve to intermediate the feeling of movement of our head through space, a feeling which, when intense, produces dizziness and vertigo. Baginsky combats this theory and Högyes combats Baginsky. Cases of Ménière's disease have been reported caused by all sorts of disease and abnormal conditions of the external and middle ear, cerumen, polyps, abscesses, etc., the symptoms disappearing with treatment. The symptoms of caisson disease are precisely those called typical of Ménière's disease, and the pathology of caisson disease is well known. Many are the instances of complete recovery (including that of

hearing) from "typical" Ménière's disease, and far more of a hundred purely cerebral and systemic diseases with "typical" symptoms. Lucae says that physiology and pathological anatomy still owe us a clearing up of this extremely difficult problem, and Frankl-Hochwart is of much the same mind. The investigations of Barnicks, Jansens, Stenger, and others leave the conclusion certain that no conclusion is certain. After nearly fifty years of most diligent investigation a supposed disease of a supposed single small organ without a single definite result and without any pathology whatever, must be either mythical, or of functional and reflex origin.

The Symptomatology.—Voury's "Professorial Guide" gives the number of symptoms as twenty-one: (1) Sudden vertigo, (2) vacillation, (3) loss of consciousness, (4) return of consciousness, (5) headache, (6) obscuration of vision, (7) giddiness, (8) loss of equilibrium, (9) propulsion, (10) paleness, (11) sweating, (12) cold skin, (13) nausea, (14) vomiting, (15) confinement to bed, (16) tinnitus; (17) deafness, (18) absence of fever, (19) return of health, (20) deafness persistent, (21) series of attacks.

The inevitable differences in the symptoms of the cases reported as morbus Ménière, and the consequent startling impossibility of getting all into the procrustean bed soon necessitated a vigorous lopping off of the overlong and overnumerous members. It was a reckless surgery, but without it the minds even of the theorizers balked, and poor Typical Disease was got to bed under

the strabismic names of "Ménière's syndrome," Ménière symptom-complex," "Ménière's triad," "Ménière's symptoms." "Ménière's vertigo," "morbus Ménière." It is difficult to understand why it has not been called "Ménière's vomiting," "Ménière's swooning," Ménière's propulsion, his gait, his sweating, his headache, or even by the too suggestive name of his "vacillation." Ménière's compulsion, or Ménière's obscuration of vision, it might well have been dubbed.

In 1872, Kroll gives the pathognomonic symptoms as sudden outbreak of acute cerebral symptoms, deafness or impaired hearing, spontaneous disappearance of cerebral symptoms, with continuance of the deafness. Bonnenfant's professor, in 1874, warned that the pesky symptom, vertigo, is common to many diseases, but pathognomonic of none; and he then proceeds to the amazing statement that nausea and vomiting is seldom seen except in Ménière's disease. Voury's definition is, "An affection of the internal ear characterized by deafness, tinnitus, attacks of vertigo, usually accompanied by severe troubles of equilibrium, a state of syncope, nausea, and vomiting." To get the clinical order of the symptoms absolutely reversed was necessary if the very big patient, Morbus Ménière, was to be got upon the very little bed. Voury finally decides that a proper patient has, and must have, at least three symptoms—deafness, tinnitus, and vertigo. The headache, vomiting, and a long kite-tail of etceteras were hacked off, and of the astonishing number of ocular symptoms present there

was never even a whisper. Kroll avers that "the diseases of no organ more frequently cause cerebral symptoms than those of the ear, and vertigo is the most frequent"—a bit of the finest humor. Rare qualms of the scientific conscience are occasionally exposed in the avid case with which our ancient, ever-living and ever-present "rush of blood to the head" ("cerebral congestion"), and the still vigorous "stomach vertigo" are deftly left out of the accounting. The unimportant *vertigo* takes the throne, while the all-important *headache* and *vomiting* are waved into banishment. Swooning, propulsion, pallor, sweating, and many others died aborning. And so the triad at last is settled upon as (1) deafness, (2) vertigo, and (3) tinnitus (inversely, again, as the square of the distance!). But—a useless *but* of course—thousands of patients have either one alone; thousands either two; a few may have all three. "But at least the patient is deaf!" By no means! Lots of cases are on record in which typicality was otherwise all that could be desired except that the deafness was either only slight, never complete, or entirely recovered from. At least in such Alice's cat has entirely disappeared and only the grin remains. And how about the astonishing majority of all cases proceeding to absolute deafness in which all other symptoms of the "syndrome" disappear? Why also absolutely overlook the great world of those deaf from any and all causes who, besides the deafness, never show the other symptoms?

"*The Organ of Equilibration.*"—In a normal condi-

tion the semicircular canals are supposed to be the organ which govern the sense of equilibrium, of the position of the body, or of the movement of our head through space. Under the abnormal conditions of apoplexy, traumatism, contiguous or neighboring disease, whirling, etc., the sense of equilibrium, position, motion, etc., is partially or wholly lost, and tinnitus, vertigo, and partial deafness, etc., supervene. But when the organ is destroyed, its assumed functions must not only be morbid, but wholly abrogated. And yet none speak of this and all ignore the fact that the patient passes from view—*i.e.*, stops reeling, vomiting, etc., and ceases to be vertiginous. A child, surely a first-year medical student, must see that in the light of such facts the semicircular canals are not the chief or only organs of equilibrium. James' experiments with deaf mutes are designed to show the relative immunity of deaf mutes from dizziness. Of 519, 186 were not made dizzy by whirling, 134 were made only slightly dizzy, while 199 were normally sensitive. While of 200 normal hearing persons only one was exempt.¹ In the name of all the great physicians not in the "Index Catalogue"—of all the great men not in "Who's Who"—what is the teaching of these facts? Frankly, nothing! But if anything at all, it is surely not that destruction of the organ of equilibrium leaves

¹A man so frank as James confesses that "obviously conditions are complicated," and "curious exceptions exist which I cannot understand." De Champeaux thinks seasickness through primary stomachal diseases produces Ménière's disease, while Guye concludes that seasickness is a symptom of Ménière's disease.

the function of equilibrium uninfluenced and actively functional—"normally sensitive," in at least 199 out of 519. And so of the foolish experiments of revolving a man like a wheel in a machine (instead of dervishwise) those with destroyed organs of equilibration should not show any more nor any less a sense of equilibrium than when not whirled. How can a subject with a single organ of equilibration ever, and under any circumstances, have any sense of equilibrium when it is destroyed? To cap the climax of absurdity, how under the theory, can a whirling dervish have any sense of equilibrium during or immediately after an hour's spin? All the mutilating experiments upon fishes, tadpoles, pigeons, etc., teach absolutely nothing, except the uselessness of experiment and experimenter. How could a clumsy endolymph with its acoustic hairs help a couple of birds to regain equilibrium, when playing or fighting amidst the branches of tree or shrub? A hundred motions in every possible attitude of the head are executed with lightening-like rapidity and precision long before such a mechanism could direct wing and eye. In the case of birds, it is of course the eyes that are the chief organs of equilibration. It seems stupid to add that the labyrinth is surely not the chief nor only organ of equilibrium. Had it been studied by observant and clinical understandings instead of by theorizers and laboratory experimentalists, its patent function would a half-century ago have been so evident as to need but a sentence to set it forth. It is, I fancy, plainly the device for protecting

the delicate and complicated mechanism of hearing from injury from violent concussions and manifold injuries due to harmful air-pressures either from without through the meatus, or from the accidents of vomiting, sneezing, eating, etc., through the Eustachian tubes. The round and oval membranous windows and the peculiar geometrical arrangements of the canals, the endolymph, etc., are all strikingly and admirably adapted to withstand and equalize strains and violences from sudden or extreme aerial blows and stresses. Brewer suggestively says gravity exerts its constant influence on our limbs, although the canals are destroyed, and it tells us where the ground is and where the zenith.¹ Helmholtz had an adumbration of this truth when he held that the nerves of the vestibule and the ampulla are those of noises, and those of the organ of Corti are for musical sounds. As to what really is the organ of equilibrium, the answer seems to be as clear and decisive; it is that of nearly every muscle ("muscle-sense") and nerve, and sensation of the body. mediated by the cerebellum, but chiefly those of the eye. This presupposes the admirable truth, called by Sherrington, "the integrative action of the nervous system."

¹Herman was frankly opposed to the belief that the canals are the organ of equilibration, movement, etc., and concluded that "the senses in the arrangements of the body are wholly sufficient to account for the feeling of equilibrium, movements, etc., because every movement, in consequence of the feeling of weight, centrifugal force, etc., must reach consciousness even after shutting off the sense of sight, by pressure of the movable parts against the static ones. Moreover, there are the influences of the muscle sense, the recognition of the surfaces of the body against the media about it"—so that "the supposition of a special sense organ for the perception of movement is not necessary."

What, *e.g.*, but that, does the swaying and incoordination and even the falling of the ataxic, signify? His disease of the deprivation of the quick sense of pressures and delicacies of sensations upon the soles of the feet, etc., normally carried through a hundred muscles and nerves, fail to notify the man with normal labyrinths, but with abnormal and sclerosed cord-strands, of the poise of his body—*especially if his eyes are closed*. And many such instances and illustrations will illustrate the truth, had science been clinical instead of theoretical and experimental.

In the Blind Alley and Why.—The profession and the “leaders” who have led it into this blind alley are in a sad plight. To go forward is impossible, to go backward is shameful. The most careful and philosophic are saying that at last we must renounce entirely the absurd eponymic, Ménière’s disease, etc., because it is ludicrous. The despairing are nagging the experimenters to read the riddle right which has been read wrong, and everybody is looking for some apparently hopeless way out of the impasse. A glance at the far sources of the blunderings should not be amiss:

A. A great and true scientist, Tyndall, speaking of so-called scientists, says: “We often complain of the scorn of theories by practical men, and to convince them we triumphantly point to the immense services of our theories. The practical man, however, will not be convinced; and why? Simply because of ten well-known theories nine deserve nothing better than contempt.

Our intellectual heroes build their theories upon enduring facts; the mass of facts which they use in order to guess the law is a measure of individual ability, not the touchstone of the correctness of their system."

Reviewing the literature of the past ten years in 1906, Herman finds the whole affair more than doubtful and speaks with justifiable irony of the tough vitality of the baseless theories of medical history.

In physics, in the pure sciences, the mistakes of nine theorists are expensive only speculatively, and the "working hypothesis," at the best and worst, can only delay the final appearance of the truth. But in medicine, every false theory is a tragical vivisection experiment, multiplied and manifolded upon the great patient, Humanity. The demonstration of the falseness of a false theory is at the direct cost of human lives and suffering—and chiefly, too, because it results in the indirect result of therapeutic nihilism, and the simple continuance of diseases from which the attention is turned away. Sick headache, or "migraine," is the present greatest, most health-wrecking, most ruinous of all modern diseases. Even supposing Ménière's disease a real nosologic entity, it is almost infinitely rare, as compared with "migraine." But sound observation, and a clinical attitude of mind instead of a theorizing mania, would, in 1861 and in any of the years since, have shown that old-fashioned sick headache is the predominant and dominant cause of the whole pother about morbus Ménière.

B. The "Typical Case" Obsession.—Even in the

infectious and organic diseases, no case was ever exactly like another. In all functional diseases, far outnumbering all others, the symptomatic differences are vastly more noteworthy than the resemblances. Every case is peculiarly, persistently, and almost totally unlike every other.

C. The Disgrace of Malignant Myopic Specialism.—In these 47 years not a physician, not an oculist has thought of the eyestrain-caused “migraine” as the cause of the disease of Ménière. For the personal profit of the specialist the human body has been parcelled out and farmed out in little patches to men with no knowledge of the great truth of the integrative and unitizing action of the nervous system. The leaders of such specialties make mighty haste to forget the true fable of the belly and its members, and besides deny the fact of morbid reflexes in all and through all. They fill their ponderous text-books with erudite theories, for example, of the mathematics of optics, and utterly ignore the ametropia that is cursing and killing at least one-half the world and three-fourths of the world's sick. No Ménièreist ever seriously asked what causes the tiny localized hemorrhage into the labyrinth, and only fools and fanatics ever tried to show that “migraine” is surely caused by eyestrain and easily cured by glasses.¹ And for 47 more

¹Two neurologists recently report 1,700 cases of migraine cured by scientific correction of ametropia, and at the same time, presidents, chairmen, “leaders” in ophthalmology publish their ignominy and shame (that they cannot diagnose ametropia and so cannot cure a single case of migraine) that the only certain thing about migraine is that it is *not* due to the eyes. The only certain thing about such scientists is that they never prescribed a correct pair of glasses.

years the cynical general physician and pathologists will join in the laugh at the loony who believes that migraine is the single sole source of all Ménière "triads," "complexes," "syndromes," and "diseases." But it is true and will be plain to all some time.

D. Sticking Fast in the Mud of Medical Ignorance and Bigotry.—In the year 1853, a scientist of the true kind, Dr. Beauperthy, published in the *Gaceta Oficial de Cumaná*, the results of arduous microscopic studies of the blood of yellow-fever patients, and almost completely, in all essentials accurately, established the truth that the disease is due to virus inoculated into man by mosquitos. In 1856, he communicated his discoveries to the Académie des Sciences. Strangely enough, he was allowed to do so. More strangely, he was not opposed, or reviled, or martyred. He was simply ignored, ignored utterly and absolutely. The matter and the man were not worth even the scorn of mention. In the year of Beauperthy's communication, there were taking place thousands of deaths from yellow fever and they continued for 40 years. According to the official British Encyclopedia, Dr. Charles Finlay was the discoverer, in 1881, Beauperthy not being mentioned. According to the medical profession, professors, and official journals, the discoverers of the mosquito role were years afterward Read, Lazear, and Carroll.

According to the official advisers and generals and honorers of the medical profession, Jenner was the discoverer of vaccination, but a thousand dairy folk

had long known of the immunizing powers of cowpox; and Jenner waited 22 years before he dared repeat the inoculation of the cowpox virus on the Phipps boy which the old Dorsetshire farmer, Jesty, had made on his wife and two children. And Jesty dared also what Jenner did not dare, to inoculate the members of his family subsequently with genuine smallpox virus. And Jenner had to fight the truth into the heads and hearts of his scientific contemporaries and aftercomers.

In 1843, Holmes and, in 1845, Semmelweiss contended that puerperal fever was a contagious affection. This was too much for the leaders and official judges, Hodge, Meigs & Co., who proceeded to silence Holmes and Semmelweiss, the one by opposition, the other by martyrdom, and again a generation passed with many thousands of unnecessary deaths, caused by medical bigotry.

Long ago a number of men became convinced and openly said that migraine and many other diseases were caused by the eyestrain of ametropia. Some at once saw their blunder (the leaders of the profession would not accept the truth) and in blind self-stultification afterward did what they could to oppose the truth. Others have since been fervently and secretly beseeching their god for forgiveness that, once and for a day, they dared to espouse an unpopular cause.

A hundred such examples could be added. To what good! And yet the mosquito is the means of conveying the germs of yellow fever; vaccination has prevented millions of deaths; puerperal fever was

carried by the doctor; and migraine, the world's commonest and worst disease to-day, is caused by eyestrain; and it is the cause of Ménière's disease.

E. Love, the Guide.—The prayer of Maimonides, as well as the tradition of the profession, is that "the truth," "science," physician and profession, exist solely for the benefit of the patient, that therapeutics and prevention of evil come not from ambition and self-seeking. Medical science becomes ignorance and confusion when disconnected from the patient, present or to come. True success lies in work for the relief of the individual patient, and of the infinite patient, Humanity. The Ménièrists seem to have taken very literally as their rule Lessing's famous preference and desire for the everlasting search for truth rather than for truth itself. Once, indeed, M. Ménière seemed to have a little thrill of sympathy for the patient who, by his discovery, should be relieved of the incubus of the fear of incurable cerebral disease, replaced by that of incurable aural disease. After that the dream faded into the light of common day, becoming the fateful system-building attempt at poisoning the unstable cone of science on its apex, a million animal experiments, and the establishment of a pseudodisease of which there was no possibility of cure and no desire of cure. A chapter on the history of the therapeutics of Ménière's disease would be more amusing than the story of Mark Twain's "jumping frog." If any one of these hundreds of erudite writers could have dropped their pens and with sympathy

watched a patient during the awful seizure of a vomiting convulsion! The truth would have been caught, even despite the blinding power of the theory of cerebral disease. "The Kingdom of Science" said a great scientist "cometh not by observation and experiment alone, but is completed by fixing the roots of observation and experiment in a region inaccessible to both, and in dealing with which we are forced to fall back upon the picturing power of the mind."

To understand the outworking of these factors, let us glance at the overlooked and underlooked symptoms of the Ménièreists.

Tinnitus and Deafness.—These symptoms served to cause the specialists in charge to consider the organ of hearing as the primary one affected. Ignorant of the integrative-action truth, they could not dream that the original source of the local aural symptoms could be in another and distant organ. And being obsessed with the crude organic pathology theory of the origin of all diseases, they again could not even think of a faraway functional source of the disease. Being physicians, they had adopted the ages-long, incomprehensible, bat-like blindness of the whole world that the eyes, the most marvelous and useful organs of the body, could not be the source of any systemic or distant disease. Now, it is as true as truth can be that there are millions of sensible people in civilization who have tinnitus of all kinds and intensities, without sequent deafness, or vertigo, or any of the 20 or 30 other symptoms of M. Ménière and his

followers. Many people can at will create a severe tinnitus by making tense certain muscles of the eyes; "setting" the muscles of the neck, of the throat, etc., will produce the same roaring in the ears. A certain number of cases of persisting tinnitus are caused by too much smoking. One patient had severe tinnitus in eating, with every motion of the jaw. It is as true that thousands of the deaf never had tinnitus, or vertigo, or the rest. To pounce upon the few who happened to have the tinnitus alone with some little or much deafness and shout it into a nosologic entity, is certainly not clinical or inductive science—most far from it! Beyond question, the tinnitus and deafness may be caused by injury, exudate, hemorrhage, etc., into the middle and inner ear. But when it is so, it is the greater duty to seek out the cause of the morbid local condition.

If the canals are the organ of equilibrium, etc., and other organs of the ear are those of hearing, why does injury of the canals produce the one distinguishing symptom, deafness? Why so little attention, practically none, to the real organ of hearing? Partly because it is usually not found to be diseased, but more, because a preformed theory must be proved. Some of the great text-books on diseases of the ear refuse to allow Ménière's disease but a brief and skimpy mention, and Politzer begs pardon for including it.

If the oculists of the world had been clinicians and observers, instead of theorizers and specialists, they could and would have long ago told the aurists that eye-

strain sometimes has its morbid functional reflex to the ear, and sets up even the most unendurable and persisting tinnitus. I have had a number of such cases besides that set forth in the *Maryland Medical Journal*, April, 1905, and in "Biographic Clinics," Vol. V, p. 67. That the local aural lesion causing the deafness secondarily produces the vertigo, the headache, the nausea, and vomiting, etc., is wholly without clinical proof, and is indeed the reverse of the truth. That the vertigo produced the aural troubles is but little more credible. Tinnitus was retained in the Ménière symptom-complex in order to help poor Deafness to preserve the disease as an aural one, although either exists as often alone as with the other.

Vertigo, Staggering, Etc.—That vertigo has been retained as one of the symptoms necessary to constitute the typical disease is evidenced by the fact that the disease is not seldom called Ménière's vertigo, or labyrinthine vertigo, etc. As a symptom, it was retained in the "triad" to exaggerate the rôle of the ear, although local aural disease rarely or never causes vertigo; although vertigo may continue with absolute deafness; although vertigo without aural disease is a million times more frequent than with it; although vertigo is plainly caused by a hundred extraaural diseases; although the cases of vertigo from eyestrain far outnumber those from all other causes combined. The symptoms of staggering, propulsion, impaired gait, etc., allied to, or extremes of giddiness and vertigo,¹ were much made of in the early re-

¹One advises surgically produced deafness to stop the vertigo!

ports, but have been less and less bespoken as it has become increasingly evident that they had no logical place in the complex, and the illogicalities, even of the retained three, in the struggle for existence, were sufficiently tormenting to the theorizers; and so the staggering, etc., had to be dropped.¹ Lucae and others confess that the conditions in which canal disease can produce vertigo are "*volkommen dunkel*."

Swooning and falling, as symptoms of morbus Ménière, were also early in evidence, and, like staggering, etc., often occur in the mis-called Ménière's disease (*i.e.*, in the explosive kinds of sick headache) which were supposed by M. Ménière and his followers to constitute their new disease of the semicircular canals. The swooning and faintings, or even the symptoms of suddenly falling unconscious, are indeed not uncommon, though not of course the rule, in sick headache and other cerebral neuroses of eyestrain. As results of eyestrain, we can understand their *raison d'être* logically, just as we often see them clinically. I have certainly had a score or more of such cases, illustrating what I have called the explosive type of migraine, cured immediately by scientific spectacles. They had more or less or all of the twenty-one symptoms of Ménière described by Voury. I have reported a few cases, but it is useless to argue, or illustrate, or plead in the present temper or distemper of the pro-

¹Learned authorities have reported cases of Ménière's disease in horses, one in a dog, and Lillman solemnly describes a typical case in a cat, which had "vertigo, shook its head, *miaute jämmerlich*, and became deaf." "There was no doubt of the diagnosis," he says!

fessional mind. But if swooning and falling, etc., could not be believed to be the results of abnormal ocular function, they could of course gain speedy credence when reported as following a drop of blood in the labyrinth of the ear. The genuine Ménièreist has by no means given them up to-day, but the more cautious and inductive investigators will not allow them to be added to the three sacred symptoms still so desperately clung to.

Headache.—Even this symptom, which every specialist and internist, every surgeon and manicurist, claims as his especial property, which characterizes every disease that ever existed or that never existed—even this thermometer and barometer and hygrometer of the medical weatherman, the more careful Ménièreists have had to exclude from their symptomatological trinity. Because, as before, it was difficult to see how the walled-off canals, even when hemorrhagic, could beget dire implication of the entire brain. Clinically, the refractionists, finally, have been able to demonstrate that headache, except in a tiny minority of cases, is peculiarly theirs, because, if they will, they can cure it. Sometimes, indeed, it coexisted with “typical” cases of Ménière’s disease, but it persisted and recurred when the slight deafness passed to complete deafness, and when the tinnitus ended. It was wrong for it to do so, but it was obstinate, and headache had finally to be excluded from the twenty-one, leaving the “three little Indians,” Deafness, Tinnitus, and Vertigo, “standing in a row.” If now the third, then the second, and, at last, the first should toddle off to

join the other deserters there would be left—"none." But the big chief around which the deserters rally is:

Nausea and Vomiting.—So far removed is the labyrinth from the vomiting center in the medulla that, although in the vast majority of the reported cases of Ménière's disease, vomiting was painfully present as the early and chief symptom, it became utterly impossible to see how the local labyrinthine lesion could set up such a marvelous and wide-spread convulsion of the organism. For one who is determined to bolster up a preconceived theory, for one who finds that "the diseases of no organ more frequently cause cerebral symptoms than those of the ear," the convulsion is easy of explanation. But a careful clinician will find it decidedly not so. And even the careless ones were early compelled to let this symptom go over to the enemy. Had they scrutinizingly watched him and his doings, they, one and all, might have read the riddle of the mystery of Ménière's disease, because he took with him the sole strength and support of their cause. For it was a rare incident and accident of vomiting that produced the single and genuine lesion which gave temporary but real warrant for the establishing of a distinct type of disease.¹ I exclude, of course, those cases due to sneezing, violent falls, blows, concus-

¹The ages at which the onset of Ménière's disease came in the early cases reported are significant. They are as follows: 47, 45, 40, 40, 32, 38, 43, 62, 60, 52, 51, 28, 38, 45, 52, 35, 46, 45, 47, 40, 60, 44, 52, 58, 53, 36, 50, 60, 36, 29, 54, 41, 55, 43, 37, 60, 51, 38, 42, 51, 40, 60, 41, 32, 47, 40, 42, 38, 45, 47, 50. The average is about 45 1/2 years, precisely the age of the incidence of presbyopia, when the previous eyestrain is greatly increased by failure of the accommodation.

sions, etc., which would mechanically wound or break or injure the delicate mechanism of the drum, the middle, or the internal ear. These things, to be sure, do produce true Ménière's disease—a few cases. But the same results are also produced by the vomiting of migraine which is as violent as that of any of these outside concussions, blows, falls, etc. If every writer on Ménière's disease could but once have personally endured the agonizing and terrible violences and exertions, almost beyond the resisting powers of the organism, suffered during migrainous vomiting, the explanation of the Ménière portion would have been discovered in 1861, and in any year thereafter. The intensity and awfulness of the acts and strains are pictured graphically by the early writers, the pallor, writhing, groaning, the agony, the sweating, the utter exhaustion and even coma afterward. The jaws are wrenched wide as if by a giant, the muscles of the head and neck, those almost of the entire body are convulsively tortured or set, the eyes bulge, and all the conditions meet for injury to the delicate mechanisms of the ear. The vomitus is hurled as if from a deep volcano against the pharynx and the distended and gaping orifices of the Eustachian tubes. And not alone the vomitus, but first, a wild tornado of ejected air and gas, with a concussive violence compared to which that of the Politzer inflation is the softest zephyr. And yet the good aurist warns of the danger of the Politzer bag, and knows of cases aplenty in which the drum has been ruptured and irreparable injury done by it to the

ear and hearing. "Soon," say the Ménière reporters, "soon or immediately after the attack of vomiting the patient complained of tinnitus, hearing was found to be impaired, and deafness increased or became complete." Should it not have been glaringly evident to clinicians and aurists, why there was roaring in the ears and deafness? Why do cannoniers find it necessary to plug the external meatus with cotton and keep the mouth closed? Or, if the ear is not plugged, to hold the mouth wide open? Why does a box on the ear sometimes cause tinnitus, disease, and deafness? The propulsive force of the air-current and vomitus against the pharynx and mouths of the Eustachian tubes, as it turns by reflection at a right angle, is far greater than the blow on the external ear and there is no closing possible of the open road to the middle-ear and all its tiny, delicately adjusted mechanisms. The prone or even head-downward position increases by gravity the vasomotor tension and the danger to ears. The vomitus and air is shot out of the mouth and even through the nostrils—but not all of it, for the bombardment of the middle-ear is inevitable.¹ Is it any wonder that in the few necropsies that have been made (the stapes being against the oval membrane of the semicircular canals) the canals should be found with lesions explaining the tinnitus and deafness? The wonder is that in view

¹Other causes of vomiting, of course, than that due to eyestrain may produce traumatism in the ear, and other causes of the traumatism, sneezing, blowing the nose, falls, concussions, diseases, etc., may as certainly cause the aural lesions.

of the millions of cases of sick headache there have not been thousands upon thousands of "typical Ménière's disease."

The Components of the "Syndrome."—Thus with minds fixed upon the aural symptoms of the disease, the Ménièrists, as we have seen, more and more neglected the many other precedent and synchronous symptoms and elements, and finally came to lay emphasis only upon the deafness, tinnitus, and vertigo. The vertigo was theoretically retained despite its frequent actual absence in cases, simply because of a false and snapped-up theory that the labyrinth was the organ of equilibrium. The attention was not upon the functional cause of the supposed disease, because, in obedience to organic and gross-lesion pathology, the effect alone interested. The attention was not fixed upon prevention of the disease, and its cure, because theorization, typicality, and disregard of the individual patient and his suffering had excluded the personal sympathy, and "the roots of observation and experiment were not fixed in a region inaccessible to both." Thus the last and final stage of the disease, deafness, was placed first in the list of symptoms, and in all the later reports the order in which the symptoms actually appear was reversed throughout the list. That is not science which is, first, the careful observation of facts, and, second, the rigid induction of principles or laws from the observed facts. It is not medical science, because no Ménièrist ever cured or prevented the disease in a single patient. Brunner

alludes, in passing, to the possible explanation of a "vasomotor neurosis similar to migraine." And Frankl-Hochwart alludes to 'pseudo-Ménière's disease due in occasional cases to migraine or its hemicranial equivalent' He also speaks of a "neurosis of the labyrinth." Another way in which the facts compel a later writer to think of migraine and yet slide away from it is shown in one who is a violent opponent of the eyestrain origin of migraine or of anything, and yet who could not wholly assent to the Ménière philosophy. In the *Medical News* of March 26, 1908, Dana describes a case of old-fashioned sick headache which he says was a "migrainous neurosis," or a constitutional neurosis. "As in other cases I have had, the migrainous tendency located itself upon the 8th nerve and produced disturbances of its function!" What caused the "migrainous tendency"? An equally good explanation, and an older one, was "God, ' or " the devil," or an "evil spirit."

To the Ignorers, Deniers, and Sneerers of the Advocates of the Eyestrain Cause of Ménière's disease, a useless word or two of warning should be added: No medical or scientific discovery was ever accepted by the so-called leaders and official judges of the matter, and the truth finally came to recognition and acceptance despite their bitter opposition. "Where the mind of genius," said a giant intellect, "discerns the distant truth, which it pursues, the mind not so gifted often discovers nothing but the extravagance which it avoids." The most common and most health-wrecking, most life-wasting,

of all diseases is "migraine" or sick headache. Call that extravagance and exaggeration if you will. It is equally certain that the cause of migraine is eyestrain, and that it is the easiest cured and prevented of all diseases,¹ "Exaggeration and Extravagance," No. 2.² Finally the symptoms of a large proportion of migraine cases are precisely those of all well reported cases of Ménière's disease.³ In those reported by the Ménièreists the aural injuries following the traumatism of the terrible vomiting are known and noted without suspicion of

¹But not by "the leading ophthalmologists" of the world. Scientific and expert refraction they know not of, and care not for.

²Despite the hideous and stultifying articles by oculists and neurologists that the disease is "rare," its "nature unknown," and that the eye has nothing to do with it, two neurologists have lately reported its cure by scientific spectacles in 1,700 cases. Many physicians and thousands of patients know that ametropia is the cause. I have cured at least six thousand patients.

³Even in the ignorers of eyes as pathogenic organs the early Ménière reporters could not help mentioning at the onset of the seizures in the case-histories such facts as these: "Often the inequilibrium was worse with closed eyes"; "illusions of sight"; "intellectual work"; "visual troubles"; "insomnia"; "nervousness"; "conjunctiva congested"; "looking intently"; "looking upward"; "driving a nail" "reading while eating"; "iron band about the head"; "writing at table"; "looking downward"; "amaurosis"; "dimness of vision"; "phosphenes"; "diplopia"; "monocular diplopia"; "unable to read with one eye"; "looking at bright light or at the sun"; epiphora"; "blepharospasm"; "lacrimation"; "orbital pain"; "couldn't sew longer"; "couldn't see"; "as if seasick"; "stomachal vertigo"; "rush of blood to the head"; "looking at moving things"; "purulent iritis"; "with eyes looking straight forward he walked steadily, but when he turned his head to either side he tended to fall"; "with open eyes he stood quietly, but with closed eyes he would have fallen"; "associated with ocular symptoms"; "muscæ"; "strong sunlight"; "bright day predisposed to an attack"; "eyes ached"; "writing at desk"; "blue spectacles"; "photophobia"; "could not face the light of a lamp"; "no attack when he did not work"; "a severe bilious attack"; "vertigo relieved by closing the eyes"; "vertigo due to high-power spectacles"; "nystagmus," etc.

their cause, and in those seen by the general physician and oculist, vomiting is well known, but the aural injuries from vomiting are neither known nor noted. Add the two sets of ignorances and knowledges together, and the pother is at an end. It usually takes about 40 years for a great scientific or medical discovery to wear out official opposition and prejudice. The rôle of eyestrain in the production of migraine and nervous disorders was announced 36 and 33 years ago. Already the opposition of the "leaders" and professors is becoming exhausted and they are beginning to accept—of course without a word of thanks to those whom they have ignored and cursed, without a word of public confession of their blundering and shame, and with grim determination to treat the next upstart discoverer with martyrdom.

Ménière's disease is simply "migraine," or sick headache, with many symptoms ignored and with three of the secondary or incidental effects of migraine over-emphasized:

A. Vertigo.

B. Tinnitus (a) of a purely functional neurotic nature, a reflex-ocular neurosis to the center or to the organ of hearing. (b) Of traumatic origin caused by vomiting.

C. Partial or complete deafness, due to injuries in vomiting.

Migraine is one of the evil effects, the most common and the most important of eyestrain, always preventable, almost always curable by scientific spectacles, because in almost 100 percent of cases it is due to ametropia.

OPHTHALMOVASCULAR CHOKE.

CHAPTER XV

OPHTHALMOVASCULAR CHOKE.¹

For over 50 years many thousand oculists have been examining the eye-grounds of millions of patients with the ophthalmoscope, and in a certain large proportion of these patients these oculists have looked at several abnormal or morbid phenomena. But they have not seen that these things were morbid, and without an inquiry as to their significance they have been classed as physiologic, causeless, and resultless. For 20 years I had been as guilty of malobservation and thoughtlessness, but my excusing of myself is based upon the fact that I had supposed that these thousands of "scientific" men and "surgeons," would not have overlooked glaring, gross, and naked-eye abnormalisms, and that the significancies of the morbid facts, facts which were plainly seen of all, would have been set forth in all the text-books of 50 years. This is especially true when one thinks how long and avidly the entire ophthalmic world has sought for the etiology of glaucoma, pigmentary and atrophic degenerations of the retina, etc., which still remain vexatiously mysterious. A cause that lessens or shuts off the ingress or egress of the retinal blood-supply seems at once to solve the problems.

¹*The Johns Hopkins Hospital Bulletin*, vol. xix, No. 205, April, 1908

One of these facts is pulsation in the veins upon the nervehead or papilla. Where else in the whole body is there a pulse beat of veins? The fact itself is an abnormalism, and should have aroused instant suspicion, and a study of its possible significance. Its immediate cause was of course understood: the venous blood could only find exit between the beats of the arteries crowded against the veins. But why the crowding? And was not the diminished outflow itself morbid? And were there no resultant and secondary failures in nutrition, *i.e.*, impaired visual functions, etc? These and like questions were not asked.

Another constant and daily revelation of the ophthalmoscope has been crossings and pressures and windings of the retinal arteries and veins under, over, and about each other, and, more rarely, even of a single trunk about or across itself. In many, perhaps the majority of such crossings, twistings, etc., the lumen of the vessel may not be lessened and the flow of blood either to or from the capillaries may not be patently hindered. But in a certain number of cases the underlying vessel is plainly flattened, even closed, and the caliber and size of the whole tube after the crossing strikingly lessened or almost extinguished. There follows the inevitable diminution of the amount of blood flowing by the constriction. Such phenomena, in default of a better name I have ventured to call "Ophthalmovascular Choke." It is of course a truism of physiology that perfection of physiologic function requires perfection of in-

flow and outflow of blood. The higher the function, the more complex the structure, the greater the necessity for a faultless blood-supply.

In a noteworthy physiologic study, by Dodge, of visual fixation, there are manifold accurate proofs that, speaking absolutely, any exact or persisting macular response to the image-stimulus hardly exists. The study takes no note of pathologic conditions, but every expert oculist knows how much more striking is the shortness and inconstancy of visual fixation with eyestrain, amblyopia, inflammations, etc. I have elsewhere made a study of over a dozen mechanisms producing shadings of the retina, and which help to reestablish the sensitiveness impaired by too much light, by the overlong or even by a short exposure of the retinal sensitive plate, etc. It goes without saying that this easily exhausted sensitiveness will give way quicker if the full supply of fresh blood is lessened in any way. The false, blurred, or imperfect image of ametropia, of course, also increases the difficulty of the retinal labor. The sharp limits as regards the length of time of the response of the normal retinal function to the exposure of one image are quickly shortened or made morbid by many factors. The study and delimiting of these factors would, in truth, serve as a measure of the subnormality of general ocular function.

There is one symptom of subnormal retinal function which has been impressed upon my attention for many years. I have probably noted it in my case-records

hundreds of times, but from apparent negligence I failed to recognize its true nature and amazing significance. From the first I have named it, *Fading Image*. Up to the last year I was so dull as not even to measure the length of time during which the image could be held, *i.e.*, the time from opening and fixation until the fading of the image or the failure of sensation began.

One further preliminary: Amblyopia *per se* may beget the symptom of "fading image;" but when visual acuteness has been retained; when perfect correction of ametropia has been secured; and when the plainest, most severe, and most direct symptoms of ocular malfunction persist; and especially when as sometimes they persist after other more severe local and systemic diseases have at once ceased with the wearing of scientific spectacles—then, other diseases having been excluded, there must arise the suspicion of some more occult pathogenetic factor in the eyes themselves. Such, more or less, were the conditions existing in the ten cases I shall briefly describe. The manifest existence of eyestrain symptoms after perfect correction of ametropia, with "fading image," plus the equally manifest ophthalmoscopic demonstration of "vascular choke," brought to view a new disease, which I cannot help feeling is of too great frequency and significance.

CASE I.¹—For most of her life a highly intellectual and non-hysterical woman, 46 years of age, had suffered abominably from

¹The first two of the following cases are epitomized from reports of my first article upon the subject in the *Medical Record* of June 1, 1907.

evident eyestrain. A number of the best oculists of the United States had failed to cure her with the best glasses and treatments they could suggest. The worst diagnoses and treatments (general paresis, said one brutally and erroneously), tenotomies and despair, the woman had wisely refused to illustrate or assent to. I was to be the last oculist consulted. But my glasses, etc., did no more good than those of my predecessors. At the first visit in using the ophthalmoscope I spoke of a curious loop in the superior temporal artery of the right eye. The patient said: "Oh, everybody has noticed that," but adding that it had no significance. The artery close to the disk turned upon itself, forming a circle about 10° in diameter, and passing under itself proceeded onward toward the macula. But in passing beneath the vessel was flattened by the pressure of the vessel about it, and from that point the artery was pale, half collapsed, and evidently carrying but a small quantity of blood. The macula was stippled and somewhat morbid in appearance, but otherwise the eye-ground seemed normal. My glasses had given no relief; there was a decided tendency to shut the right—the naturally dominant and important dextral eye—out of function; no device had given hope; the subnormality of accommodation of the right eye was about 1 D. greater than in the left eye—a significant fact; the amblyopia had not bettered under proper glasses; the symptoms, partly those due to eyestrain, were so peculiar as to arouse suspicion that more than ametropia was the matter—such were the conditions which directed attention to the hitherto neglected looping of the upper macular artery, and the plainly lessened blood-supply of the retinal area supplied by it. I at once ordered a blinder worn nearly constantly before this eye. A more certain test would have been a bandage, because, according to the physiologic law of imperative function, the right eye must struggle for life and dominancy during all the years it is dying. In a few weeks the report was that while there was not by any means complete comfort, there had been a decided lessening of the severity of the pain, etc. The most

significant fact was this: While the blinder was worn there was comparative freedom from pain, etc., but when it was removed a throbbing pain came on, which did not disappear until the blinder had been worn again for an hour. I then knew my theory was correct and that there was nothing left but to exclude the ailing eye from function. A large black lens was provided to be worn absolutely constantly, and relief was soon secured. After a life of excruciating suffering the patient wrote (a year after first consulting me): "I am sure it will gratify you to know that my eyes are relatively comfortable; the blinder is a lasting success." Eloquent testimony to the reality of the suffering and also of the cure, is shown by the willingness and necessity of wearing the hideous blinder all the time.

CASE II.—There had been failure of seven oculists, the last myself, to relieve a healthy strong young man of 20 years of age of "inability to use his eyes." His greatest complaint, upon persistent questioning, is that he becomes suddenly blind, or nearly so, when looking at anything. Things fade out and become nearly and wholly invisible. Even in the street, in looking at a person, the bodily figure grows dim or invisible; when playing baseball, and watching the course of the ball in the air, it will disappear for a second or more and then again become visible. In order to see anything plainly he has to rub his eyes. In near vision it is more impossible to hold the image. The peculiar and persistent blepharospasm for twelve years, with the rapid fading of the image, seemed to point to difficult holding of the retinal function due to faulty blood-supply. Competent general physicians had examined him and pronounced him free from all recognizable systemic or organic disease.

Having in mind the case above described, I was quick to recognize the existence in this man's eyes of the anomalies of the network of the retinal veins and arteries. From the point of emergence or entrance at the disc they curled about each other, crossed and recrossed each other, in a manner to strike immediate attention.

Description would be almost impossible. The upper temporal artery of the right eye crosses over the vein on the disc, and crosses under the vein twice after leaving the disc. The lower temporal artery crosses over the vein on the disc and does not recover full size and color for 30° below the disc. The upper temporal artery of the left eye passes over the vein on the disc, again passes under the vein on the disc, and once more passes under the vein about 40° from the disc. The lower temporal artery passes beneath the vein on the disc, passes over the vein 20° from the disc; and again over the vein 40° from the disc. The arteries are smaller and thinner and lighter in color on the disc than toward the periphery, whereas the veins are turgid and swollen as they approach the disc. There was noteworthy general venous stasis, and venous pulsation was present. Both eyes were affected in the same way, but the right possibly in a more decided manner. I felt justified in ordering correct lenses, in explaining what I thought the cause of his symptoms, their incurability, and in urging a lifetime renunciation of nearly all reading, writing, or near-work occupations. This advice was accepted, and after a year the reports are that the symptoms though somewhat improved still remain essentially as before, increased of course by "nearwork" with the eyes.

CASE III is that of the physician's wife reported in *American Medicine*, February 24, 1906, and included in Vol. V, *Biographic Clinics*, page 115. Up to the present time the woman has been as healthy and as happy as could be wished. There is not a trace of "neurasthenia," "hysteria," "retroversion," "exhaustion," backache, headache, etc. But one bothersome symptom was discovered after the complete re-establishment of the general health. It was not noticed earlier because near work with the eyes was not undertaken. During the last year it has been found that reading, writing, or sewing at once produces waves of inability to hold the vision, or the image; "things fade out" when looked at for a few seconds, and there is a great "nervousness" when the task is persisted in. The patient is compelled to renounce. This symptom,

indeed, has always existed, but it was hardly noticed because of the vastly greater and more multiform suffering, and also because "near work" with the eyes was not persisted in. Since recovery the natural desire to read, write, and sew, has become more imperative, and the inability to do so more noticeable and strange. The significance of the fact lies in the possible incidence of the symptom and the terrible results from use of the eyes in those who cannot, as can this woman, renounce labor with the eyes at near range. Despite all attention to refraction, correction of subnormal accommodation, physical exercise, and other therapeutic advice and device, the "fading image" persists. With continuous fixation of a letter or word, either at 20 feet or at 14 inches, it fades to nondiscrimination or nonvision in three or four seconds. This is with either eye alone or both together. In reading, etc., the patient is compelled to move the gaze constantly from one object to another in order to keep on with any continuous work, and if the eyes are forced for a too long task, there is ocular pain, nervousness, evident injury, especially the next day, and then any use at all is impossible. The upper ophthalmic vein of the right eye passes under the artery at the disc, is engorged before reaching it, and empty, almost invisible, afterward. There are numerous other crossings, and venous pulsation is present. The crossings and pulsation are similar in the left. After massage of the eyeballs in the office the images were held for about two seconds longer than usual, but such massage carried out at home afterward seemed to produce other symptoms, such as headache, etc., and the patient would not go on with it.

CASE IV is that of a young man of 25, whose eyes at ten were so bad that he "could not distinguish food and dishes upon the table." Headaches attributed to constipation, troubled as a child, and there were attacks of sick headaches, without vomiting, with pain over the right eye, etc. He has noticed that he has had to look aside constantly for an instant in order to fix any object at all persistently. The fading-image symptom was verified. He was

and remains naturally left-handed, but was taught to write with the right hand. There has long been noticed "blurring of vision" with near use of the eyes. The eyes burn, insomnia is complained of, etc. Thinking the symptoms due to his uncorrected astigmatism I ordered B. E. +Cyl. 0.75 ax. 90° for constant use. My error was more excusable because of his amybyopia, which with the best lenses was 20/40 each eye, but more marked with the right eye. I found a vascular choking especially of the right, which kept me on my guard, and made me caution the patient that if the fading-image symptom persisted he should change his occupation to one demanding the least possible use of the eyes for near work. This choking was manifest to me in a unique crossing of the upper ophthalmic vein of the right eye over the artery, in such a way that the vein rose over the artery in a sharp half-circle, like a letter n, the artery crowded beneath and within, and filling all the space. There was manifest choking and stasis. Similar conditions existed in the left eye, but less marked. There was long venous pulsation in both eyes, with congested and highly stippled maculas.

CASE V is that of a woman of 34 whose clinical history consisted in "fading image" (spontaneously complained of), headaches, and many swooning or fainting attacks. She "had all the diseases of childhood," "remaining in a dark room a long time," "a protracted attack of malaria," etc. Her general physician thought another long illness 15 years ago was a return of the "malarial infection," but she was cured at once by some glasses secured at the time, from a good refractionist of another city, and the "malaria" has never recurred. Whenever she did not use the glasses there was a recurrence of headaches. She has had many oculists and I found the last one had ordered R. +Cyl. 1.00 ax. 75°, L. +S. 0.50 +C. 0.50 ax. 90°, with +Sph. 1.00 added for near work. The headaches start in the eyes and extend to the occiput, have been particularly severe during the last year and a half, with nausea in the morning until she puts on her glasses. Feelings of nervousness,

hurry, irritation, etc., were also complained of. She "faints away" on the least provocation. The swoonings began in late childhood, and she falls to the floor unless she hurriedly sits down when she feels them coming on. With proper correction of ametropia, the image fades in the right eye in three to four seconds. Early in the morning the image is held twice as long as after use of the eye during the day. The fading is "typical," *i.e.*, the image goes out entirely and returns completely. In the left the image is held longer and is a blurring and indistinctness rather than a full disappearance of the image. With both eyes the failing comes on in about eight seconds. Full clearness of the image recurs in about eight seconds. In the right eye there is venous pulsation, the superior ophthalmic vein passes under the artery, and afterward it is only one-half the size from this crossing until it enters the nerve. It is swollen and turgid before the crossing. There is no venous pulsation in the left, less venous clogging, seemingly because the vein passing under the artery just at the point of turning to enter the nerve, is not so much choked. While held, the visual acuteness of the right eye was at first only 20/40; after wearing glasses awhile it became nearly 20/20. The acuteness of the left was nearly normal from the first. The refraction error is:

R. +Cyl. 0.50 ax. 100°.

L. +S. 0.37 +Cyl. 0.75 ax. 90°.

CASE VI is that of a robust young woman of 23, whose general health since renunciation of study, and near work has been good. During the period of her most severe studying six or seven years ago she had a "nervous breakdown" (in the language of the lay-world—"neurasthenia" in that of the neurologists), and was compelled to leave school. At this time she was very "anemic," and had a score or more of "fainting spells," losing consciousness from 5 to 10 minutes at a time. Four years ago she got glasses, worn ever since:

R. +S. 1.75 +C. 1.00 ax. 90°.

L. +S. 2.25 +C. 0.50 ax. 90°.

Her static error I found to be:

R. +S. 2.50 +C. 1.75 ax. $85^{\circ} = 20/30$.

L. +S. 2.75 +C. 1.00 ax. $95^{\circ} = 20/20?$

with good muscular balance.

With proper correction the object steadily gazed at, fades out in four seconds with the right eye, and with the left eye in six seconds, with both eyes in eight or nine seconds. She has long been conscious that she "couldn't hold the sight of things;" the symptom was worse before she got glasses, during her "breakdown," etc. It troubled her little when she wore her glasses, in after years, and was not noticed when she did not use her eyes in reading, writing, etc. Indeed, it came to be her rule to wear the glasses only when the symptom became troublesome. Several months after her first visit to me and at her second visit it was as troublesome as ever, and the visual acuteness had deteriorated somewhat, because she had been wearing her glasses but little. Even then the fading image at this time would cease bothering her much whenever she resumed her spectacles. I found the vessels frequently intercrossed near and upon the disks, the lumens of those passing beneath flattened and in great part extinguished, the veins turgid, etc.; there was no marked venous pulsation.

CASE VII is that of a woman of 30, in whom frontal headache began about 9 years ago. Two years later pain in the eyes was so severe that different parts of the body, the tongue, arms, etc., seemed as if paralyzed by it (the old story again!), and continuing until the only relief obtainable was by means of morphin. The pain at the first visit to me was chiefly at the backs of the eyes, but also in the temples, forehead, and back of the head. This was constant, she was never free from it, even in the night. Whenever she tries to use the eyes she has intense nausea and a "faint feeling," and can sleep at night only if she has not used her eyes at near work during the day. Constipation has been severe. She has lived an out-of-door life, having neither read, written, or sewed

for years. "Muscular rheumatism" (misnamed!) has existed from childhood, and photophobia and epiphora have been troublesome. She was wearing B. E. +S. 2.00 +C. 0.25 ax. 180°, and had been using glasses for about six years. Her static error I diagnosed:

$$R. +S. 2.00 +C. 0.37 \text{ ax. } 180^\circ = 20/20.$$

$$L. +S. 2.00 +C. 0.25 \text{ ax. } 180^\circ = 20/20.$$

with 12° of esophoria.

Her last oculist had advised tenotomy, but fortunately this was not accepted. Her general physician pronounced her disease to be "due to a neuropathic condition of the general system—in a word a neurosis"—the ancient modern naming of an unknown condition with a meaningless word. I ordered the above correction less 0.37, for constant use, and one year later there had been but little improvement. She lived far away and I begged her, unwisely as it proved, to have thorough examinations and treatment, by the best general physicians. But these had no good result, and, after having used and disused bifocal glasses for possible subnormal accommodation, I had her make another journey to me. By this time I was on the lookout in such cases, for the fact, and the causes, of the fading-image symptom, and at once it was demonstrated. The refraction, etc., remained essentially as before. The main trunks of all the vessels passed over or under each other several times, but there was no venous pulse. The image of either eye alone could be held for three, or at most five seconds, and with both eyes for three seconds. With attempts to hold it longer the eyes filled with tears. Any jar makes the eyes throb, and stooping produces this at once. The blurring or fading seems like a pulse wave that comes and goes. The image is not held better in the early morning. She raises her eyes and eyebrows constantly in attempting to look at anything. She finds she dare not go to church, theater, parties, etc. She has the curious and anomalous ability and habit, when attempting to "concentrate" or fix her gaze, of raising the right and lowering the left eye at the same

instant. Her local oculist, a skilled and conscientious man, thinks the trouble comes from the esophoria, but this cannot be when the image fades with either eye used singly. I shall not consent to tenotomy, although massage and other possible therapeutic measures seem useless. The rules of life and of practical living are clearly indicated.

CASE VIII.—At my request this patient wrote the following. “All my life I have had headaches, ‘nervous,’ ‘neuralgic,’ ‘bilious,’ or ‘sick.’ As a young child I would have spells of semiblindness, followed by the tense head-pain, and finally vomiting, exhaustion, sleep, and recovery. These attacks or others, have continued at intervals, ever since. Have had neuralgia (facial, head, and eye) also. Was known as a ‘nervous, fidgety child,’ given to outbursts of passionate anger, nervous terror, or violent weeping. For years I had throat trouble, ‘tonsillitis,’ and was a persistent somnambulist. When walking in my sleep I always executed any commands given me, and had the general air and appearance of one hypnotized. I was usually perfectly conscious—but powerless to control my actions—and was filled with a nameless terror, that usually ended in a paroxysm of weeping. These occurrences are now quite rare.

“From babyhood also, I have had attacks of losing my breath. My old nurse called it ‘holding my breath’ and said it was temper. (Possibly because strong emotion or violent feeling of any kind brings on such attacks.) I feel smothered, faint, gaspy, dizzy—sometimes the sensation passes off in a few minutes, especially if I can reach open air, sometimes it continues until a state of partial unconsciousness results. I never fall—(save once or twice as a child after jumping rope) but frequently feel the floor rise or sway—and have to catch something to steady myself. These seizures were especially frequent between the ages of twelve and fifteen, and eighteen and twenty (the latter a time of great grief, and worry and stress). I have also been subject to attacks of exhaustion somewhat similar to the above; sometimes combined with them, sometimes independent—when the prominent symptom is complete collapse

inability to speak or move, and an intense desire for silence and solitude. These latter attacks have been conspicuously frequent of late.

"My hearing has for years been abnormally acute and abnormally irritable. The ticking of a clock is almost unendurable, the buzz of voices or any constant sound, however low, nearly drives me frantic. My father exhibited the same idiosyncrasy.

"All my life I have had a tendency to flushing, the blood beating in the temporal and jugular arteries so that the pulsations are plainly visible. At such times I feel strangled. Another prominent idiosyncrasy is an insatiable thirst, which has persisted since childhood. I drink quarts of water a day, and yet my mouth and throat are at times so dry that I speak with difficulty—(I have a natural lisp anyway, and as a child, stammered. I do so now when tired or excited.) Of late this thirst has been even more pronounced, and I imbibe more water than ever. I seldom drink liquor or malt beverages, and can digest but little milk. My mother could not nurse me, cow's milk nearly killed me, so I was given to a healthy wet-nurse, and was weaned on goat's milk.

"My digestion is fairly normal, though I cannot and do not, indulge in rich meats, pastry, or greasy foods. I am a good sailor, seldom get sea-sick, but from childhood have been 'car-sick' when riding on trains. It almost nauseates me to look down from a height

"As a little girl I always winked, blinked or frowned in the sunlight, or any bright light. I had the usual children's diseases, plus two protracted attacks of malaria (never scarlet or typhoid) and the pronounced 'nervousness' previously chronicled. This prevented any regular schooling until I was twelve years old, but I read insatiably all the time, in school or out.

"When sixteen or seventeen years old I developed an inflammation of the eyes which caused my mother to consult an oculist. He prescribed glasses 'for reading,' and for some time treated the eyelids with nitrate or silver. I wore these glasses for several years.

"In 1896 I developed insomnia, some digestional disturbance, and more than the usual number of attacks of faintness. The physician consulted prescribed digitalis, bromid of potassium, and hydrochloric acid (I think)—and change—I took up teaching at this time—my father's estate being hopelessly muddled, and worked and worried and grieved myself almost into collapse.

"For ten years thereafter I led a very strenuous life. I taught (part of the time both day and night), studied at the University afternoons, Saturdays, and summers, kept house, etc., and for several years there were troublous times. Prior to this, I had had a winter of eye-symptoms; went to Dr. ———, who tinkered a long time, and then to Dr. ———, who took great interest, was very kind, and seemed to help me. I consulted him at intervals for several years.

"During the summer of 1903, I attended a summer Art School, and on my return to school-work in September broke down. I then developed insomnia, and numerous other nervous symptoms. I consulted Dr. ——— in September or October, 1903. The diagnosis was 'a case of nerves, due to strain and overwork, coupled with a strong hereditary, nervous tendency.' All winter I was harassed by an indescribable nausea, without vomiting, morning and afternoon. Dr. ——— finally decided it must be due to a uterine misplacement, which was found to exist, along with considerable congestion. I was treated for this for some time, and at intervals ever since; for the trouble returns whenever I fall from the physical high water mark. During the summer I recuperated—had little or no nausea, etc. On my return to the city in September I developed grippe—and then in October started on a siege of morning nausea and evening vomiting which lasted till spring, and has left an apparently ineradicable tendency ever since. The nausea and vomiting was sandwiched in with attacks of faintness, headache, giddiness, irritability, insomnia, and uterine trouble, singly and together until summer and rest brought relief. For a long time Dr. ——— had ordered, entreated, cajoled me to leave

school, for a while anyway. Accordingly I remained out from July, 1905, to February, 1906. There was improvement but not cure. The same old symptoms, modified, persisted less harrowing, and I had more time to recuperate in between. During this time my eyes failed again. For years I had heard oculists speak of 'spasm of accommodation.' I consulted Dr. ——— who found the 'spasm,' spoke of 'an interesting case,' and after a time decided there was rheumatism of the muscles (Dr. ——— had said the same) and directed Dr. ——— to give me some anti-rheumatic remedy. She had done this previously on her own account, but did so again. Eyes improved for a while. Resumed school duties in February, 1906, and again my woes began. In September, Dr. S. insisted on my taking a year's leave of absence. I did so, and remained under her supervision all winter. There was gain and improvement but not absolute cure. During June, 1907, I did constant writing and my eyes gave out utterly. It was then I first wrote you. This fall the principal trouble is headache, eyeache, nausea, flushing, faintness, smothering, and exhaustion, nervous irritability, and dread of sound, and an inability to read more than a few minutes at a time—coupled with intense dread of light—especially electric. My head feels at times as though it were being crushed, and there is pain and sensation between the shoulder blades, and from there up to the head.

"Dr. ——— gave me another thorough examination last week. She says it is 'all nerves' and I must learn to help myself. My heart is in bad shape however (functional and not organic), and circulation is generally disturbed. 'There is a general tendency to congestion of all organs, a general functional impairment.' A urinalysis revealed 'no albumin,' but 'waste that should be there' (whatever that implies). There is very slight uterine misplacement but 'pelvic organs are in better condition than ever before.' There is no insomnia, but on the contrary heavy sleep, broken with much dreaming, and general sleepiness all day. Dr. ——— has forbidden meat, tea, or stimulants of any kind; and advises

plenty of fresh air, but 'little walking and no stair climbing for a while.'"

I was at first completely in error as regards the cause of this girl's many and real symptoms. She had had many different oculists who prescribed the worst possible lenses and I too hastily jumped to the conclusion that as in so many thousands her troubles were due to wrong glasses. The following were some of the corrections which had been ordered:

1. B. E. + Cyl. 0.75 ax. 90.
2. B. E. - Cyl. 1.00 ax. 180.
3. B. E. 1° Prisms, Bases in.
4. +Sph. 1.00 D for near work.
5. R. +S. 0.25 - Cyl. 1.75 ax. 175°
L. +S. 0.25 - Cyl. 1.50 ax. 15°.
6. R. +S. 0.50 - Cyl. 1.50 ax. 170°.
L. S. 0.50 - Cyl. 1.50 ax. 10°.

I found her static error to be:

R. -S. 0.12 + Cyl. 0.37 ax. 80° = 20/30.

L. +Cyl. 0.37 ax. 110° = 20/30. Orthophoria.

But this correction brought no more relief than did the ludicrously wrong ones, and a second visit some months later was required to learn that the bad corrections and no correction, although making the patient's symptoms worse, were not wholly at the bottom of the mischief. Fading and fluctuating image was the indication of the source of her misery. In about eight or ten seconds this extinction takes place with either eye, singly, and in about twelve seconds for both together. A few minutes reading brings on headache, and an unendurable irritability arises. Her photophobia is increasing, but she has never liked light, always 'wanted to get in shaded places, under low lights, etc. Even bright colors have always been disliked. The greater the illumination the quicker the image fades. Inquiry brings out the fact that she has known of this fading out of the thing looked at for seven years.

The only good my glasses had done was to bring the visual acuteness for a few seconds at a time to normality. The ophthalmoscope showed strong venous pulse in the right, intercrossings of the vessels, turgidity of the veins, while the arteries were thin and pale. These conditions were not so marked in the left eye. By my advice the patient resigned her position, which required much reading and writing, as teacher, and for at least one year she is to stop all near use of the eyes, live out of doors, etc.

CASE IX is that of a highly educated nonhysterical nonneurotic woman aged 32, who was so unable to study as a child that she did not go to school until she was 13 years old. She came to me after consulting many oculists without relief for sick headache—"typical migraine," if there is such a disease. These attacks began about ten years ago, the crises of increasing headache, depression, vomiting, etc., occurring every few weeks. There were the usual old well-known accompanying symptoms of partial anesthesia, especially of the fingers of the left hand (Why is it always the left?) at the crises. She says: "Ordinary doctors called it neuritis or rheumatism, but their remedies did no good, while upsetting my stomach." (This ancient nonsense-wisdom will survive for how many generations? O Rheumatism and Neuritis, how many medical crimes are committed in your name!) I was so hurried at the first visit that I failed to elicit the details of really more important symptoms, and as the "migraine" was the greatest complaint, and as that is the easiest curable of all diseases, I was the more readily negligent of the duty to get at all the details of past abnormalisms. All of her oculists had given her low spherical lenses alike in both eyes. One had been guilty of cutting the tendons of both interni. The "migraine," of course, continued. There has not been a sign of it since I ordered proper correction of the compound hyperopic astigmatism and subnormal accommodation, and the restored general health and happiness has been shown in an abundant gratitude. But in a few months came complaints by letters that reading, writing, etc., were almost

as impossible as before, and a second journey again brought her to my office, when a more perfect case-history and a few tests brought a solution of the mystery.

During girlhood and in more recent years she has often swooned or fainted, sometimes losing consciousness, probably for considerable periods of time—she was found, *e.g.*, on the floor by her sister in this condition during the night. She remembers now that as early as this, “objects disappeared from view” while looking at them. For instance, at church and while looking at the minister, she would find she could not see him—“he faded out” etc. Her eyes are in constant movement, shifting, lifting, winking, etc. She has never analyzed or made definite this phenomenon, but for many years she has found that in reading she has to move the book about, constantly shifting it up or down, etc., indescribable dimness or indistinctnesses occurring all the time. This was especially necessary in studying German owing, as she discovered, to the formation and shapes of the letters. She remembers that when under the care of one oculist ten years ago “he was almost driven to distraction because she could not answer his questions.” The test letters would be clear for an instant and then blur up. When I was testing her vision this was also painfully evident and as had long been habitual with me, I kept her closing the eyes every few seconds, and then by opening the eyes refixing the letters with the clearer vision gained by the darkening of the retina. She herself taught me a device whereby I could alone secure the proper discrimination: trying one 0.25 addition (or subtraction), or changing of the axis of astigmatism, by a glance at the letters, and after a second’s closure, trying the reverse lens, or axis.

She has a long S spinal curvature dorsoleft, lumbar right, with difficulty in bending the trunk to the left, with characteristic kinkings of the lumbar vertebræ, etc.

A peculiar photophobia has always existed and is so highly significant, and is so frequently present in these cases, that it deserves marked attention. Her symptoms have all been worse

in summer, and any sunlight, glare, or brilliant artificial light, has been repugnant and if not avoided, brought on pain in the eyes, or headache. She has exceptionally large pupils and her husband has noticed that their increased dilatation is a "danger signal" preceding headache, etc. The pain in the eyes, usually the left, has been at once lessened or stopped by darkness or wearing a blinder. She can see better in a dim light; she has kept the lights turned low in her rooms at night, and has always read with the shadow of her head, etc., on the book. She has long had her room heavily shaded, papered with dark wall-papers, etc.

Many tests, each made after closure of the lids, show that the image of a test-letter is held about four seconds with the right eye, and three with the left, and with both together only about four.

At the first visit I made doubly emphatic notes of the existence of very small and pale retinal arteries and capillaries, but at the second visit I saw why this was so. There were abnormally numerous crossings of the vessels, on and near the discs, the thread-like arteries lying almost always beneath the relatively overfilled veins. There was no venous pulse. It was evident that the maculæ and adjacent regions were very poorly supplied with arteriel blood. In spite of all this the visual acuteness was for two or three seconds perfect. There was almost no change in the refraction-error between the first and second visits.

It was plain to me and I made it so to the patient that there must be as nearly a perfect renunciation as possible of reading, writing, sewing, etc. Fortunately, although pitifully against taste and habit, this is possible. Had she been a seamstress, clerk, teacher, etc., the tragedy would have been far greater.

CASE X.—Nineteen years ago I prescribed spectacles for a young man with the desired relief of headaches, etc.; but ever since there have been puzzling continuances and recurrences of other symptoms I had supposed due to eyestrain. All the changes and devices I could suggest have never been satisfactory either to my self or my patient. Even before I had recognized the significance

of the symptoms of venous pulse, fading images, etc., before I had supposed they had any significance, I had noticed "fluctuating images," variable refraction, inexplainable amblyopia, with return of normal acuteness, switching of axes, "asthenopia," an alarming development of myopia, followed by a speedy recovery from it, etc. The headaches I had long been able to conquer, but not these other symptoms. In all such cases I have been habited to send for the patients to whom I had failed to give satisfaction in order to re-examine the refraction, to test for subnormal accommodation (this patient had it), to look for spinal curvature, secure urinalyses, etc., all of which in this case were resultless. So when I had got a clear idea of ophthalmovascular choke, I at once sent for this man. It took only a few minutes to find what I had so long overlooked—all the distinctive symptoms of the disease conjoined. The image faded out in three or four seconds with either eye or with both together; there was frequent constant closing, "batting" or "blinking" of the lids—more decisively and longer held than in winking; rubbing of the eyes, "watering" of the same, photophobia, etc.; there was inability to read or write but a very short time and that with discomfort and "nervousness," or tiring; and there was the necessity of constant movements of the book, etc. Another symptom was new and startlingly suggestive: if reading was forced the book was held to the right side, and finally so far, that the left eye could not see the page; only the nasal side of the right retina was then used, and the macula region was disused. A glance with the ophthalmoscope made it all clear—there were the unmistakable proofs of vascular choking. The veins were highly distended, and overfilled with dark blood, and there was a long and labored venous pulsation in both eyes. The crossings over each other of the vessels, on and near the discs, and sharp bendings showed sufficiently numerous and severe obstructions to the flow of the venous blood, to account for the symptoms even without the venous pulses or retrobulbar choking. This patient's circumstances were such that he could follow the advice

to do no "near work," at least for a while. I had not the heart to tell him of my belief that he would never be able to read much or any.

These findings, taken as a whole, seem to me to constitute a new and clearly-defined type of ophthalmic disease; to throw a flood of light into the pathogenesis of many ocular diseases hitherto seemingly unrelated, and of unknown origin; to differentiate a source of eyestrain until now unsuspected; and to explain a large number of vague but still most real systemic "nervous" and mental disorders. As is well understood, the higher, more complex, more neurologic or cerebral the function, the greater must be the supply of fresh blood, the more imperative the necessity for quick elimination of the venous blood. Slight denutrition is decidedly weakening and much of it is fatal. Nowhere can it be more harmful than to the astonishingly complex and highly differentiated tissues of the macula region of the eye. At its best and most perfect these parts are with difficulty fed by the nearby but not entering capillaries. Not to be overlooked is the fact also that the function of the rods and cones here is in such an amazing state of unstable equilibrium and has to respond to a force millions of millions times more slight, for instance than the ear.

The anatomic and physiologic mechanism of the macular blood-supply is, moreover, subject to noteworthy difficulties and dangers. If in spraying one's lawn the hose gets curved upon itself the "pressure" or supply of water is lessened. In animals with divergent axes of vision of the

two eyes there is not the curving of the retrobulbar optic nerves as in man. With him there is for the first time in evolution not only parallelism of the axes, but in a "near-worker" there is actual and habitual convergence. The greater the approach to parallelism the greater the curving of the optic nerves, and the more convergent the axes the more the reading, writing, etc., done, the higher is the curve of the orbital portion of the optic nerve. Supposing that when straight, the retinal vessels within the optic nerve had plenty of room, it is evident that their lumens would prevent free transmission of the blood just in proportion to the degree of the neutral bending or curvation. It is possible that this cause may act in this way to lessen the proper income and outgo of the two kinds of blood.

But when one thinks of the size of the optic nerve made up of 425,000 strands of insulated fibers it is seen that the vascular trunks in the center of these fibers have little enough room for the blood to pass freely, and that the least crowding may readily interfere with it. Venous pulsation, heretofore considered as wholly without significance, is, however, an abnormalism, is evidence of a function which either is or may be in itself pathologic. It is plainly a demonstration of "choke," showing that the outflow of venous blood from the eyeball is irregular and difficult. It is, I suspect, due to crowding of the vessels in the optic nerve and may therefore be differentiated as *retrobulbar choke*. That the retinal infrabulbar arteries have no pulse beat seems in itself proof of

some vascular compression in the nerve, and an added one is the fact that sometimes the venous blood can escape only between the posteriorly placed beats of the artery.

Infrabulbar choke may possibly be a simple or secondary consequence of retrobulbar choke through the added pressure in the arterial blood columns to force an entrance, and through the resultant venous turgidity and impeded outflow of the venous blood. But if there is a plainly added pathogenetic factor easily demonstrable by the ophthalmoscope, and, from the evolutionary history and from the physiology of the eye, most likely to occur, then we have a doubling of two possible pathogenetic agencies which will easily become really denutritional and disease-producing. Such a cause is that found in the ten cases above reported—crossing of the vessels over or under each other, with resultant impeding of the flow of the blood-currents.

The pecten and the shading mechanisms of the retina must be considered to make clear how and why these infrabulbar chokings have arisen. I do not know that any one has suggested a function or *raison d'être* for the pecten in birds. It could scarcely be a "mistake of nature," or a mere curiosity for a true scientific man. The danger to the retina of man from direct exposure to the sun's rays is of course well known. Even as little as he need to expose his eyes to these rays in the labors, games, or wars of life, nature has found it necessary to supply the retina with more than a dozen distinct, ingenious, and differing mechanisms elsewhere described

by me, for shading the retinas. But in animals by their habits necessarily exposing the retinas to the danger of direct sunlight, some of these mechanisms do not exist, and all would, in the birds, be insufficient to prevent retinal injuries from this source. Waving about freely and extensively in front of so large portions of the funduses of the eyes of birds the pecten admirab'y serves as an ever-moving and protecting curtain. The constant motion of the head and eyes keeps up the alternate shading and exposure of the retinas that is required. Anatomically it is a loose mass of blood-vessels. In the higher vertebrates and man it is not needed, and, as it were, becomes thinned and flattened out forming the fixed single layer or network of arteries and veins, thus giving more extended areas of functional retina; and other shading mechanisms have also replaced it in function. In this retrenchment, flattening, and immobilizing process, and aided by other evident factors, it is but natural that intervacular crossings should occur with resultant pressure on the underlying vessel, diminution of its lumen, impeded flow of blood, etc.—in a word, what I have called “infrabulbar choke.” When the functional interference may become pathogenic and beget morbid denutrition of the difficultly nourished macula, is a question purely of circumstance, condition, and clinical demonstration. The *fading image* appears a natural consequence and symptom, and once put on our guard and made watchful for it, its clinical appearance is easily recognized, and of far-reaching significance.

Some practical lessons and cautions may be gleaned even from these ten cases: The fading image in each eye singly, demonstrates that it is not due to muscular imbalance, and a number of other tests make this clearer; one must be on his guard against confounding this symptom with that due to long-continued eyestrain, from uncorrected, or what is worse perhaps, badly corrected ametropia. In amblyopia *per se* the symptoms may be found or rather simulated, but is easily differentiated if care is exercised and the entire case-history is meticulously followed and coordinated with the existing symptom-complex. There is no excuse for the lessening of the exquisite care and conscientiousness required to eliminate the more frequent and common eyestrain, for proper glasses usually lessen the evils of the vascular denutrition, and relieve the symptoms heretofore ascribed to it, while, also, that may be the sole means of making life happier and possibly endurable; subnormal accommodation must also be looked sharply after, and solicitously excluded or allowed for; the time required for the fading must be measured for each eye singly and for both together, and the results compared with the usually corresponding anatomic and functional conditions as shown by the ophthalmoscopic examination of each eye-ground—for, as everywhere else, and particularly here, there is no “typical case,” individualism being peculiarly emphasized in this disease; in conjunction with the fading image, the existence of objectively observable vascular choking, and more surely if with

venous pulsation, there can be little doubt of the existence of this sad disease. Two profoundly suggestive symptoms may have been overlooked in some of the foregoing cases in which I have failed in the recording, but that swoonings or fainting attacks were strangely marked in five, and a notably peculiar photophobia in two, arrests the attention. They are natural results of the deficiency of blood-supply to the macular regions. The effect of this disease upon the cerebral and mental processes, upon the disposition, the occupation, upon a host of ever varying conditions called "nervous," upon "hysteria," "neurasthenia," and the like, is startling in illumination. The transcendent importance of clear and healthy vision to the success and happiness of life should be unquestioned. A cause that cuts it off or impairs it every few seconds is of vast import. The function of vision, never to be renounced, ailing and fluctuating every minute, never to be cured or even understood, add elements of pitiless mystery and despair aptly fitted to induce psychic disease or neurologic morbidity. The inane and fatuous explanations so fashionable with neurologists, "neuropathic tendency," "heredity," "autotoxemia," etc., will not be ended perhaps for a generation, but the study of such cases as these should with genuine clinical knowledge sign their death certificates in twenty-four hours—at least so far as pertains to patients with eyestrain or ophthalmovascular choke.

May not this disease explain some or many cases of the development of acute myopia? It supplies the precise

condition which would seem required. And of otherwise mysterious and sudden changes in the amounts of myopia, or in the axes of astigmatism?

Just in proportion as the various single symptoms and signs mentioned are united with others, just in proportion to the number conjoined in a single case will the disease approach "typicality." In order of their importance these may be enumerated as:

SUBJECTIVE.

1. The fading image—according to the number of seconds the image is held, with each eye singly, and with both cooperating.

2. Inability, with all the best ametropic corrections, to read, write, sew, etc., except for an abnormally limited time.

3. Constant changes required in the position of the book, paper, etc., with frequent looking away from it, ceaseless ocular movements, and even reading with some extramacular portion of the retina.

4. Exaggerated winking, approaching blepharospasm, the necessity of rubbing the eyes, etc.

5. Photophobia, conjunctival hyperemia, smarting, sensitiveness, excess of tears, etc.

6. "Nervousness," restlessness, with many, often vague, psychic, and cerebral symptoms, becoming under circumstances more severe and indescribable or even "hysterical."

7. The existence of one or more of these subjective

symptoms in one eye, or in both, in conjunction with a corresponding degree of objective vascular choking.

8. Unaccountable refraction-changes, the acute development of myopia, etc.

OBJECTIVE.

1. The existence of such crossings, crowdings, obstructions, sharp turns, etc., of the vessels, on or near the discs, as may prevent the free passage of arterial blood to the macular region, or of the venous blood out of the eye.

2. Abnormally enlarged and engorged veins, or abnormally small or thin arteries.

3. Vessels manifestly collapsed, or partially empty after such crossings, obstructions, crowdings, or chokings, in the direction of the blood-currents.

4. Venous pulsation.

5. Abnormal stippling, or pigmentary changes at or about the macula, not to be accounted for by other causes.

The prognosis, it must be admitted is not the brightest, but several important things may be said of it:

1. We know nothing about what changes or modifications in the disease are wrought by presbyopia, which, as it lessens the intraocular pressure, switching of plus astigmatic axes to 180, etc., may bring lessening of the choking. Massage of the globes of the eyes does not seem of much avail. I am going to try the effect of long-continued installations of weak eserine solutions.

2. Most patients require nothing more than abstention from reading, writing, etc., to secure comparative com-

fort and happiness. Cycloplegia by atropin may be of use for a few weeks.

3. The recognition of the inobviable commands of fate and limits of circumstances is infinitely better than the fright and horror of a fatality whose nature is unknown, and beyond forecast of how, when, or where, it will strike.

4. On the part of the patient the recognition makes definite and orderly the direction of the life, whereas at present how many thousands are wandering from doctor to doctor, from sanitarium to sanitarium, now filled with hope then in the misery of despair, never well and never dying. With this knowledge the plagued patient may learn the essence of all life-wisdom—to make a friend of fate, *i.e.*, to learn the uses of his limitations, and to stop banging his head against the walls of destiny.

5. On the part of the profession it would be far better to know the real source of the suffering of so many patients, now dubbed by a dozen silly words, “toxemia,” “neurasthenia,” “hysteria,” “invalidism,” “break-down,” “neuropathic diathesis,” etc. Those physicians may be checked who are deluding these victims throughout their pitiful lives, knowing medicine cannot cure, but knowing as well that the patient can pay well for the delusion that medicine will cure. On the part of the conscientious physician or oculist, it is better to know what is the cause of the nagging mystery, to know at least that it is not due to improper glasses, muscle imbalance, or the need of Mrs. Eddy.

6. The “cures” of Mrs. Eddy and the faith-curists, are

often seemingly real, because the diseases cured are often due to eyestrain, and ophthalmovascular choke. When the cure is apparently real, it is because reading, writing, etc., are stopped. Intellect and literature are not needed by the Eddyite.

Ophthalmovascular choke, if so much is admitted and becomes established, may be found to constitute the etiologic factor, or at least a frequent and chief one, in the rise of many ocular diseases now veiled in mystery. It is remarkable that we are in more or less complete ignorance of the origin of so large a number of the principal intraocular diseases. The pathogenesis of most, in truth, is either unknown, or erroneously ascribed to vague and nonexplaining conditions. Take all the entire classes of diseases characterized by pigmentary and atrophic degeneration of the retina both central and peripheral; they are preceded usually by stages of acute inflammatory processes, followed by atrophies, precisely as one would expect to find in a shutting off of the normal blood-supply. There are islets of preserved retinal sensibility; the central or macular portions may keep their function better, or the peripheral ones may do so; the normal central acuteness may be well or poorly sustained, etc., according to the circumstances and accidents of the nature of the choking; or, as in our cases, the sensibility may be retained more or less perfectly but only for abnormally short spaces of time. I suspect that in most or all of the cases by the anatomic pathologists called retinal arteriosclerosis, ophthalmovascular choke is the

real disease instead of primary sclerotic changes in the vessel-walls.

That elder choking called *choked disc*, together with many mysterious cases of optic atrophy—may not these and many retinitises be caused by a bad blood-supply, or, what is the same thing, a deficient blood excretion? The great mystery of the origin of glaucoma may be at last resolved by weighing well the natural and inevitable consequences of vascular choke. The ludicrous inadequacy and ineptitude of the text book etiologies of glaucoma, illustrate—well, they illustrate “much.” Exophthalmic goiter with its chief symptoms, tachycardia and exophthalmos, may possibly have a primary, or at least a cooperating cause in the denutrition and abnormalisms of secretion following a deficient blood-circulation of the internal parts of the eye.

THE REFRACTION-CHANGES DEPENDENT
UPON GLYCOSURIA.

CHAPTER XVI

THE REFRACTION-CHANGES DEPENDENT UPON GLYCOSURIA.*

The majority of oculists have long but vaguely known that glycosuria produces changes in the refraction of the healthy eye, but no one seems to have gathered the facts to a focus or gleaned the lessons derivable from their study. When a perfect illustration of the condition came into my practice I was therefore astonished to find that the few reports of cases observed in the past were mostly badly reported, a portion probably incorrectly reported, and a series of eight absolutely irreconcilable with another series of eight. Moreover, the theories as to the mechanism of the refraction-changes were as numerous as vague, and as irreconcilable as the reports of the cases themselves. As I tried harder and harder, in my first studies of these cases and theories, to understand them and resolve the mysteries. I found myself always deeper in doubt and amazement. But when I faced a final charting of the cases, the problem seemed to me to be suddenly resolved. The report of my case is as follows:

**Medical Record*, April 20, 1907.

Read before the Ophthalmic Section of the College of Physicians, Philadelphia, April 16, 1907.

*Gould's Case.*¹—Dr. M., a busy physician carrying on a large practice, had for many years been a patient of mine, and by frequently repeated examinations I had kept close watch of his refraction errors, because the least eyestrain in so severe a worker and student meant a vast deal for him. I may add that this patient also took a great deal of personal interest in the eyestrain problem, and had learned by bitter experience, subjective and objective, that certain theories as to the ocular origin of much systemic disease were true. He was, therefore, admirably fitted to help me correlate the facts to be described. Another condition to be noted is that the patient is now 58 years of age and myopic, so that the chance of error from incorrectly diagnosed accommodation is quite out of the count.

In December, 1902, Dr. M. had been wearing

R. —Sph. 2.62 —Cyl. 0.75 ax. $35^{\circ} = 20/20 +$.

L. —Sph. 2.62 —Cyl. 1.25 ax. $167^{\circ} = 20/20 +$.

B. E. —Sph. 0.87 and Cyls. for near work, in bifocals.

This error of refraction, although frequently tested, had not materially changed for many years. On the 18th of the month my patient appeared with clearly marked symptoms of eyestrain. I found a sudden increase of myopia, measured by

R. —Sph. 3.25 —Cyl. 0.75 ax. $25^{\circ} = 20/20 +$.

L. —Sph. 3.25 —Cyl. 1.50 ax. $166^{\circ} = 20/20 +$.

B. E. —Sph. 1.12 and cylinders for near.

There was also a noteworthy limitation of the range of accommodation. This increase of myopia in a man of 58, in one apparently healthy, although explainable, perhaps, in other ways, aroused my suspicions. Rigid questioning brought out the confession of several symptoms, which made me urge careful urine analysis. Quickly came the answer: "The urine is loaded with sugar."

¹Hitherto unpublished report.

The strictest dieting was immediately carried out, and within a few days every trace of sugar was eliminated from the urine. But then, as promptly, there was again eyestrain. A reexamination of the refraction showed that the errors had returned almost exactly to the point of seven days before.

In the next four years the total of the myopic corrections increased slowly and more in the last year, when Dr. M.'s health began to show some instability. I warned in vain. The sequel proved that he had simply grown more careless as to his food, eating sweets and starches with thoughtless indifference. In December, 1906, the errors were demonstrated to be

R. — Sph. 2.87 — Cyl. 0.87 ax. $25^{\circ} = 20/20 +$.

L. — Sph. 3.00 — Cyl. 1.50 ax. $172^{\circ} = 20/20 +$.

B. E. — Sph. 0.50 and cylinders for near.

By February 18, 1907, symptoms of ill-health began to grow manifest, even to the careless-of-self mind of the patient, and he resumed the long-neglected analyses of the urine. The first one showed again an extremely high percentage of sugar. He was also having eyestrain, ignored for the time being, in his interest in other things. Of course the rigid diet was again put into force, and in two or three days not a sign of glycosuria could be detected. Then the patient returned to me with greater eyestrain than ever, and again there was the astonishing reduction in myopia measured by

R. — Sph. 2.00 — Cyl. 0.62 ax. $20^{\circ} = 20/20 +$	} Distance.
L. — Sph. 1.87 — Cyl. 1.37 ax. $170^{\circ} = 20/20 +$	
R. Cyl. alone	} Near.
L. + Sph. 0.12 and cylinder	

These corrections brought perfect visual acuity for distance and near, absence of all eyestrain, and the ocular conditions, with unessential changes, will probably remain the same so long as there is no glycosuria.

Grimsdale's Case,¹ of a woman aged 45, who came October 7, 1897, wearing for some years, for near vision,

R. + Sph. 1.00 + Cyl. 0.75 ax. 160°.

L. + Sph. 1.75.

Fourteen days previously the woman had noticed that her refraction had suddenly changed, so that her reading glasses were no longer needed, and distant objects were not seen so clearly as formerly. Vision, natural, was 6/60 in each eye. Without mydriasis the errors were estimated as follows:

R. - Sph. 2.00 - Cyl. 0.50 ax. 180° = 20/20.

L. - Sph. 2.00 = 20/20.

With this correction the patient at once said, "That is how I used to see." No mydriatic was used, nor was the range of accommodation tested. The right lens had scattered central opacities, the left was clear. At this time there were 26 grains to the ounce of sugar in the urine. Treatment was now instituted, and in ten days the report of the oculist was

R. 6/18 - 0.5 = 6/12, not improved by cylinder.

L. 6/6 No Hm.

"She now required + Sph. 2.50 to enable her to read 0.3 Sn. at one foot." "She was on strict diet, and the total amount of sugar had much diminished." "The right lens presented considerable irregular astigmatism." In a few weeks death occurred following diabetic coma.

De Schweinitz's second case was that of a girl 20 years old, with no organic lesions except congenital posterior capsular opacity in each eye. Under cycloplegia the errors were determined

R. + Sph. 0.25 - Cyl. 0.75 ax. 135° = 6/10.

L. - Cyl. 0.62 ax. 15° = 6/7 1/2.

Six months later the patient returned, complaining of rapidly deteriorating vision following some prolonged illness. It was

learned that diabetic symptoms came on shortly after the first visit, and that large quantities of sugar had continued in the urine ever since, despite treatment. No mydriatic was now used, one judges, but a myopia of 3.00 D. in the right eye, and 2.00 D. in the left was demonstrated, with vision of 6/22 and 6/12, respectively. Systemic treatment was continued, and in three months the visual acuteness was holding its own. But edematous choroid and vitreous opacities had now become manifest. In another month the myopia of the right remained the same, but that of the left eye had become 5. The patient died not long after this. Dr. de Schweinitz concludes that a diffuse edematous affection of the choroid is the underlying pathological process in such cases.

Appenzeller's case (Graefe-Saemisch) was of a patient 43 years old, who had 1.00 D. myopia while the glycosuria existed, but when, under treatment, the urine was normal, emmetropia again returned.

*Hirschberg's Case.*²—Hirschberg gives a brief resume of the case of a man 48 years old, who had for many years seen plainly with—Sph. 91" *i.e.*—Sph. 4.62 D., but who now complained of dimness of vision. With his old lenses he could not read any longer. There was no paralysis of the accommodation. The proper correcting lenses were now found to be—8" Sph.,—Cyl. 40" ax. 180°. Diabetes had been present for 14 days, followed by some (doubtful) loss of weight. The eye-grounds were normal. The urine contained 6 1/4 percent of sugar.

*Dujardin's case*³ was of a woman 69 years of age, applying April, 1899. There was high glycosuria, and despite treatment the percentage of sugar remained between 70 and 80 grams per liter. The media were clear and the eyes healthy. She could no longer see well at a distance, although formerly she had had sharp acuteness. For reading she had required +Sph. 4 D., but could not now read with these lenses. The pupils would not widen under atropin. By retinoscopy about 5 D. of myopia was made out. Homatropin was ordered as a collyrium and belladonna given

internally on the theory that a spasmodic condition of the ciliary muscle existed. A month later conditions remained the same.

*Risley's First Case.*⁴—A woman of 49, having had glycosuria in the past, complained that, with the suppression of the glycosuria, and consequent improvement in general health, her vision had grown rapidly worse. She was wearing +Sph. 2.75. The dimmed vision had been observed only within a few days. Under mydriasis the errors were

R. +Sph. 5.00 - Cyl. 1.25 ax. $75^{\circ} = 20/20$.

L. +Sph. 6.00 + Cyl. 0.75 ax. $105^{\circ} = 20/20$.

In ten days glycosuria returned, and with it dimness of vision again, and the correction (nonmydriatic, one gathers) was

R. +Sph. 3.00 + Cyl. 1.25 ax. $75^{\circ} = 20/20$.

L. +Sph. 3.50 + Cyl. 0.75 ax. $105^{\circ} = 20/20$.

Fifteen days after this she chose (nonmydriatic, probably)

R. +Sph. 1.25 + Cyl. 1.25 ax. $75^{\circ} = 20/20$.

L. +Sph. 1.50 + Cyl. 0.75 ax. $105^{\circ} = 20/20$.

*Risley's Second Case.*⁴—A man, 74, suffering from saccharin diabetes for at least six years, was the subject. In August, 1896, the errors were

R. +Sph. 1.50 + Cyl. 1.25 ax. $180^{\circ} = 6/7 \ 1/2$.

L. +Sph. 1.25 + Cyl. 1.25 ax. $180^{\circ} = 6/10$.

The lenses were cataractous. In April, 1897, the vision in each eye remained the same, presumably, with the same errors of refraction. Fourteen days later dimness of vision was complained of, and the visual acuteness with his distance-glasses was with each eye 6/30. No sugar, or but a trace, was present, and the man now selected

R. +Sph. 2.50 + Cyl. 1.25 ax. $180^{\circ} = 6/7 \ 1/2$.

L. +Sph. 2.00 + Cyl. 1.25 ax. $180^{\circ} = 6/10$.

Within three days of a month later the patient had been compelled to return to his old glasses within a few days, and he now chose this correction, the first above given, with almost the same visual acutenses. Sugar was again found—4.20 percent, and a specific gravity of the urine of 1,027.

*Carpenter's case** was of a woman, 51 years old; consultation was for dimness in reading during last six months. There was no local ocular disease. Refraction (without a mydriatic) was diagnosed

R. — Sph. 0.25 — Cyl. 0.50 ax. 90° = 20/20.

L. — Cyl. 0.50 ax. 90° = 20/20.

+ Sph. 1.75 added for reading. Reading glasses only ordered.

Six years later the patient returned, stating that her reading glasses had proved comfortable until within a few weeks. Her correction was now found to be

R. + Sph. 1.50 = 20/20	} Distance	} Bifocals ordered.
L. + Sph. 2.50 = 20/20		
With + Sph. 2.25 added for reading		

Four weeks before this last visit glycosuria had been diagnosed by her physician, and treatment begun, with great decrease of the percentage of sugar. Still no local disease of the eyes was found. In three weeks she returned to her original careless diet (rich food, sugar, etc.), and convex lenses made vision worse, but R. — Sph. 0.75, L. — Sph. 0.50 again brought the distant acuteness to normal.

*De Schweinitz's first case*⁵ was of a patient, a man of 47. The man had fairly healthy eyes, but the report does not state whether the first refraction was made under cycloplegia, or not. Each eye was hyperopic, +1.25 D. The complaint was of failing vision in presbyopia. One gathers that glasses were ordered

*Not published. MS. report kindly loaned by Dr. Carpenter of Philadelphia.

for presbyopia only. Four years later the complaint was of dimness of vision for distance, "scarcely one-half" what it had been four years previously, *i.e.*, normal, and -Sph. 0.50 was now required to give normal acuteness. Glycosuria was suspected and demonstrated. By June 14, 1895 (a month later), sugar had been extinguished. Although the static refraction does not seem to have been determined—a matter of regret—the inference is that the change of refraction from +Sph. 1.25 to -Sph. 0.50 was due to the glycosuria. As there was not decided lesion to be discovered by the ophthalmoscope, etc., the inference seems justified, and another case of displacement of the focus forward is to be added to the list.

*Neuberger's First Case.*⁶—A 50-year-old woman who had been emmetropic and able to read the finest print with +Sph. 2.00, came four months later, reduced in flesh and with a myopia of R. 1.5 D., L. 2.00 D. Smallest print would now be read with +Sph. 1.5 D. and L. +1.00 D. Weakness of the accommodation was also present. The lenses were, and remained clear. The urine contained 3.5 per cent. of sugar. In about three weeks emmetropia returned and +Sph. 2.5 D. was required to read fine print. The myopia had thus disappeared, *although at this time the glycosuria had increased to 7 per cent.* Diabetic retinitis later appeared, but the lenses continued clear and the refraction emmetropic.

*Neuberger's second case*⁶ was of a woman of 48, who two years before had a hyperopia of 0.75 (+1.5 for near), but now was myopic, R. 1., L. 2.5 D., and no glass for reading. The lenses were clear at first, but later became obscure. Six months later the myopia was R. 3.00, L. 8.00 D., with cataract progressing.

*Alexander's Case.*⁷—The patient was a man of 57 years of age, who had felt a decrease of visual acuteness for distance during the last 14 days. A myopia of 1.00 was diagnosed. For near +Sph. 0.75 was sufficient when 1.75 was before demanded. The sugar was 5.7 per cent. In 8 days dieting brought the urine to normality, emmetropia, returned, but this in 5 days changed to a hyperopia of

1.75 D., the urine continuing free from sugar. In epitomizing this history Groenouw* rightly says the original refraction was probably hyperopia, which later became manifest.

*Groenouw's Case.*⁸*—A woman of 55, suffering from diabetes, suddenly acquired a myopia of 1. D., which in 3 weeks became emmetropia. The lenses were clear. This is given by Groenouw as a case of latent hyperopia becoming manifest.

Doyme's case† was of a physician of 40 who consulted the oculist for failing sight. The man was suffering from acute diabetes. Three diopters of hyperopia were found, and this correction was ordered and the glasses were worn without discomfort. Practice was discontinued and a sea voyage undertaken, but upon his return he complained of dimness of vision for distance. The hyperopia had lessened and +Sph. 2.50 each eye again gave normal vision. Soon afterward dimness of distant objects again recurred and the strength of the glasses had again to be reduced, "and later on, when the sugar disappeared, under homatropin freely used, only 0.75 of hypermetropia existed."

Horner's case⁹ was of a woman of 55. The hyperopia had rapidly increased; it was $1/14''$ at the time of the visit, but with improvement in the general health it sank to $1/48''$

Cohn's case (Graefe-Saemisch) was one of increase of the hyperopia in a 68-year-old woman, from 1.50 to 3.00 D.

Landolt's Case.¹⁰—"We have observed, among others, a most interesting case of this kind. A lady had a fall and became diabetic as a consequence of this traumatism, although her general condition was not much affected by it. At the same time she commenced to no longer see well at a distance, and found the spectacles, that she had previously worn on account of her presbyopia, to be insufficient. The refraction could be determined, in this case, with the utmost accuracy, not only because the patient was very intelligent, but because she had reached an age at which the

*Reported in the discussion of Mr. Grimdale's case.¹

†Augenleiden bei Diabetes Mellitus, Groenouw, 1907, p. 46.

accommodation is almost *nil*. I made out a hyperopia of 0.5 D., which certainly had not previously existed. It increased and then diminished, according to the amount of sugar excreted, and finally disappeared entirely. So that, when this traumatic diabetes was cured, the patient could dispense with her distance spectacles, and substitute, when reading, her former spectacles for the stronger glasses which she had been obliged to resort to. I have seen the patient for several years, and it has been extremely interesting to note that each little recurrence of diabetes has announced itself at once by a diminution of refraction, to such a point that the curve of hyperopia was, so to say, parallel with that of the quantity of sugar eliminated with the urine."

*Gallus' Case.*¹¹—A man aged 51, under treatment for diabetes for two weeks, noticed impairment of vision for distance. Sph. +2.00 for reading had become too weak, although he "could see well through them into distance." Examination revealed R. + Sph. 1.50 + Cyl. 0.50 ax. 180° = (What?) L. + Sph. 2.00 + Cyl. 0.50 ax. 180° = (What?). With +2 added he could read the smallest type. Under treatment glycosuria ceased, and in two months the hyperopia had subsided so that the patient needed only cylinders and could read again with +Sph. 2.00 + Cy. 0.50.

*Lichtenstein's case*¹² occurred in a man seventeen years old. The refraction is given as +Sph. 1.50, estimated without a mydriatic, but 12 D. +Sph. lenses were required to enable the patient to read from print at 9 cm. The paralysis of the accommodation is said to have been "complete." He had suffered from no diseases (except glycosuria) which would cause this paralysis. Despite treatment his glycosuria had increased in severity, and urinalysis now showed 4.5 percent of sugar present, and some six liters of urine were voided daily. The patient was sent to a colleague, and the next day the hyperopia was found to be 2.5 D., with 13 D. lenses required for near. Homatropin now showed the same 2.5 D. of hyperopia. Five days later it was 3.5 D., demonstrated by atropinization and skiascopy. For 14 days the condi-

tions remained the same, but the young man felt better. Now 3.5 D. was required for distance, but only 11 D. for near. But this was soon reduced to 6 D., and in about two weeks from the first visit it had fallen to 5 D. The hyperopia gradually fell from 3 D. to 2.5 D., then to 2 D., and finally to 1.5 D., the point whence it started on March 8, 1906. Lichtenstein says the doubt as to the latency of hyperopia was excluded by his atropinization. L. explains that in this case two factors united to produce the result, paralysis of the accommodation, and transitory hyperopia. He explains this as due to loss of water by the contents of the globe and a resultant shortening of the anteroposterior axis.

Sourdille's Case.—In an emmetropic woman, 53 years old, S. observed a hyperopia of 2.00 D. occur, which again disappeared with the disappearance of sugar.

*Lundsgaard's Case.*¹³—The patient was a woman, who in 1892 was found to have +Sph. 0.50; "the ophthalmoscope showed emmetropia." In the summer of 1905 there was great thirst and polyuria, but according to the general physician no sugar or albumin existed in the urine. In 1906 traces of sugar appeared, and in a month the percentage was 7 3/4. Dieting reduced the sugar somewhat, but sudden dimness of vision called attention to the eyes when a hyperopia of 2.50 and 2.00 was found. The media were clear. Accommodation accorded with the age. The percentage of sugar was now reduced but not extinguished, and the hyperopia fell; finally the sugar was eliminated entirely and on the 19th of November, 1906, the hyperopia returned to the figure of 1902.

These twenty-two cases are not all those which, by more rigid search or less rigid rules of exclusion, might possibly be included as data.* If we arrange them in three series we find the first, composed of those

*Kako's case of developing +astigmatism, *e.g.*, is omitted for evident reasons.

in which myopia is increased by glycosuria (or decreased by its extinction) is made up of six—those of Gould, Grimsdale, de Schweinitz's second, Appenzeller, Hirschberg, Dujardin.

The second series, those in which hyperopia is decreased by glycosuria (or increased by a return to normality) is made up of eight—those of Risley's two, Carpenter, de Schweinitz's first, Neuberger's two, Alexander, and Groenouw.

The third series, those in which hyperopia is reported as increased by glycosuria, is composed of eight—Doyne, Horner, Cohn, Landolt, Gallus, Lichtenstein, Sourdille, Lundsgaard.

Principles Governing the Determination of the Refractive Conditions.—It is of first importance that in the report of a case the precedent static refraction must be the basis of any comparison. In all persons under 60 years of age, except occasionally in myopia, the accommodation, unless paralyzed, would make a possible error rendering all comparisons inaccurate, and if under 50 years almost wholly untrustworthy. The reports of glycosuric refraction change in hyperopes under 50, unless the diagnostic tests have each been made under cycloplegia, are of little value, except that the physician believed and reported his belief that the presence or absence of sugar in a general way indicated certain refraction changes. If the presbyope is highly myopic that gives an added element of accuracy. Still greater precision is to be predicated in cases in which

previous accurate refractions have been made frequently and over a long period of years. The astigmatic error, once correctly determined, may be discarded in speaking subsequently of the cases, because this changes but slightly in cases of paralyzed accommodation, so that the statement of the relative myopia and hyperopia is practically all that is necessary. In no case so far reported has there been any exact mathematical relationship stated between the varying amounts of the sugar and the degrees of the resultant refraction-change. This valuable aid must therefore be left out of the amount. In the reports of future cases it should be made out and reported upon. The absence of local ocular disease that would obscure the nature of the refraction changes must also be insured. When glycosuria has set up extensive choroidoretinitis, pronounced cataract, etc., a new factor is added which may be the cause of so much doubt that the report is made suspicious. The tests, to be of the best value, must be in cases with acute glycosuria, in which the eyes are so far healthy, the media sufficiently clear, the funduses so nearly normal, the acuteness of vision so good, etc., that the measure of refraction is not in doubt. The shorter the period of time between the tests of the glycosuric and the non-glycosuric refraction the more valuable will be the data obtained, and the more convincing the deductions made from them. Lastly, the oculist must be a refractionist, believing in the value of accurate refraction tests, habituated to make them, and seriously aware of the evil

results of bad and slipshod refraction to eye and general system. There is little or no possibility of securing a trustworthy estimate of the refraction in all Europe, where the refraction is pronounced alike in both eyes, astigmatism ignored, etc., and whenever a report comes to us wherein the refraction has been estimated with the ophthalmoscope, and bearing ludicrous internal evidences of bungling, and contradicting the reports of careful and keen-witted refractionists, there may be no delay in speedily setting it aside as worthless, or of little scientific value.

Exclusion of reports according to the foregoing principle becomes easier when we notice that there is no reported case of myopia in which glycosuria has not had the effect of increasing the myopia—that is, of bringing the focus of the dioptric system forward. All such cases are logical, one may say, as naturally the effect of glycosuria must be to affect the focus in that way. Whatever be the mechanism intermediating the change it is impossible to comprehend how glycosuria can displace the focus posteriorly. Now, as the myopia of an eye is far more easily and accurately measured than the hyperopia, and without a cycloplegic, it is not surprising that all observers, good or bad, unite, in their reports, that glycosuria, if it changes the refraction at all, increases the preexisting myopia.

Confirming this result, we find that the reports of eight cases of change in hyperopia also say that the effect of glycosuria is to advance the focus exactly as happens

in myopia. And in this series occur the names of such trustworthy refractionists as Risley, Carpenter, de Schweinitz, etc.

It is simply inconceivable that the mere accidents of the location of the retina in the path of the refracted cone of light-rays should have the reverse effect in displacing the focus in hyperopia, from what it does in myopia. Therefore when eight reporters find such an illogical if not impossible reversal of the natural consequences as testified to by fourteen, it behooves us to doubt the accuracy of the oculists' tests and reports rather than to indulge a belief in the inherently improbable and impossible. Let us briefly glance at the cases critically of those reporting increase of hyperopia:

In Doyle's case, the patient was 40, no mydriatic was used at first and as the only true basis of comparison, and the squint of the corner of the mouth becomes visible when it is said that three diopters of hyperopia were found! The case was pretty plainly one of latent hyperopia, astigmatism, etc., becoming manifest "later on," because of the frequent effect of glycosuria on the accommodation, or because of advancing presbyopia. It should therefore be set aside. No wonder that Mr. Doyle had no explanation to offer.

Græfe and Saemisch explain Horner's case and that of Cohn as due to latent hyperopia. Schmidt-Rimpler, and Groenouw also explain similar cases in this way.

In Landolt's case there is too much vagueness in the report and too little increase of the hyperopia—only

0.50 D.—to make us heed the claim of “utmost accuracy,” made in behalf of the improbable.

The patient of Gallus was 51, the acuteness of vision was not noted, no mydriatic was used, etc. The change was probably in the accommodation, not in the (untested) static refraction.

Of Lichtenstein's case one doesn't know what to say, except that the inherent absurdity of 2.5 D. hyperopia with 13 D. required for near vision is so great as to make us smile with incredulity. Then it must not be forgotten that atropin in Dujardin's case did not even widen the pupil. Until competent refractionists report other cases similar to this one it must remain as a single and anomalous empiric fact in which other factors than glycosuria were present. This is the only case reported of one so young as 17 years, a fact to be remembered.

Sourdille's case was in a patient 53 years of age, and no mydriatic was used. *Exit!*

In Lundsgaard's case, “the ophthalmoscope showed emmetropia,” and with that admission “the defense may rest its case.” (In speaking of his own case Schmidt-Rimpler (*Die Erkrankungen des Auges, etc.*, Wien, 1905), says, “the upright image demonstrated a hyperopia of 0.5 D.,” so that case may also go to the Jury forthwith.)

We may therefore feel no compunctions in excluding on the ground of erroneous diagnosis, due to failure to estimate correctly the static refraction, almost all of the cases so far reported in which it is claimed that glycosuria removes the focus of the dioptric system to a position

posterior to that occupied in the previous nonglycosuric period.

It would require an entire paper, and a long one, to enumerate and critically judge of the theories advanced to explain the *modus operandi* of the effect of glycosuria upon the refraction. I doubt if the most capable mind could do much toward clarifying the obscure subject. I had made a list of these numerous theories, but I do not think it would be edifying to read it. The arguments point toward a consensus of opinion favoring increased density of the ocular fluids, functional disturbances and paralysis of the lens and ciliary muscle, etc., rather than to changes in the corneal curves, changes in volume of the contents of the globe, or displacement of the macular region of the retina.

As to the significance of the phenomenon, everybody has emphasized the importance of the recognition of the refraction and accommodation changes as warnings of the existence of the systemic disease. In the days of life insurance examinations, of routine urinalyses by the general practitioner in almost all cases of ill-health, of the striking evidences to the patient of thirst, polyuria, etc., the warnings seem somewhat antiquarian, at least not of the first importance. The wideawake American oculist would prefer to doubly emphasize the overlooked truths: (1) That the eyestrain preceding the glycosuric refraction-change may have been a prime factor in producing the functional dietetic and nutritional disease called glycosuria; most significant is the fact that the

great majority of the cases occur during the presbyopic period; (2) that the secondary refraction-change serves as a perfect illustration of the increase of the diseases due to overstrain by the proverbial vicious circle, increasing the irritation and nutritional abnormalism by the secondarily induced refractive changes caused by the glycosuria; (3) the necessity of preventing quick-following ocular disease, both functional and organic, by heeding the accurate warnings given by the refraction changes consequent upon early and curable glycosuria. But whatever the point of view, and whatever the injuries done or threatened, the accurate diagnosis of the static refraction overtops and conditions every measure of prevention and every step of progress either in science or in therapeutics.

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THE "NEUROPATHIC DIATHESIS" AS THE
CONDITION OF HEADACHE AND OTHER
FUNCTIONAL DISEASES.

CHAPTER XVII.

THE "NEUROPATHIC DIATHESIS" AS THE CONDITION OF HEADACHE AND OTHER FUNCTIONAL DISEASES.¹

Old-fashioned tuners, before the days of John Sebastian Bach, used to chuck all the discords of the "untempered" pianoforte into the upper end of the scale and call it "the devil"; when the pianist played for anybody but himself "the devil" was to be avoided entirely or touched most gingerly. Musicians soon learned a much wiser, more workmanlike, and harmonic way of tempering, and now the discords are scattered all through the scale, much to the benefit of player and hearer. Medicine also has its discordant part of "devil", several of them, in fact; unmedical "leaders" and "authorities" are stupidly ingenious in the sorry "science" of trying to put all the discords and assumed mysteries designated "neuropathic tendency," "diathesis," "autotoxemia," "neurasthenia," "heredity," and the rest of the blunderings into one corner of the pathologic keyboard; they then studiously avoid it, and dance over it, or about it, with ludicrous ignoring and dexterity. But the public do not like such medical music, and the quacks are reaping the rewards; leastwise there is surely no reward for the

¹*New York State Journal of Medicine*, July, 1908.

patient public, for the public patient, or for the impatient profession.

But the "neurologist," or the ophthalmologist playing the neurologic game, cares little for the patient, the public, or the profession, and so cares less that faith-cure, osteopathy, the refracting optician, or unchristian unscience have taken that scorned part of the keyboard called the devil, and are vigorously playing all their music in it. Every text-book on nervous and mental diseases takes especial delight in enlarging the devilish part of the keyboard, likewise every laboratory of pathology, every therapeutic nihilist, nearly every "leader" and professor of fashionable medicine. Now, as functional diseases are the remote origins of organic diseases, and as functional diseases cause almost all the suffering of the world, and as functional disease is nearly the sole basis of most medical practice, it follows that the modern medical scale is small indeed, while "the devil" is almost the whole of the keyboard. Well, the resultant "music" is mighty poor! The world is flinging its pennies to the man of the street organ, but it is likewise much minded to pay us only to make us "move on" out of its ear-range.

I have gathered a notebook full of the evidences of this fashion of so-called medical science to enlarge the diabolic part of the medical keyboard. Instead of quoting these, let me take the latest set of the fashion:

Before the Section on Nervous and Mental Diseases of the American Medical Association, meeting in June, 1907, Doctors Coggeshall and MacCoy, of Boston, read a

paper on "Headache" (published in the association's *Journal* January 4, 1908). This paper is noteworthy in many respects, but chiefly in the fact that there is in it a much overqualified and grudging, yet finally an explicit admission of what for many weary years I have been so wearisomely contending— that "migraine" is caused by eyestrain. The words used are these:

As a result of the conscientious study of the whole subject of headaches during the past fifteen years we have been forced to abandon the common conception of the disease with which we started out. We have come to regard the classical type of migraine as a headache due to the presence of a local irritation, practically invariably eyestrain, in an individual of markedly neuropathic diathesis, in which the immediate recurrence of the attacks may be due to the special irritability of the nervous system, caused by transient but frequently recurring conditions of toxemia, which in a less neurotic individual or one who was not subjected to the nervous wear and tear of the eyestrain, would be incapable of producing any such effects.

In other words, the authors state that the fundamental conclusions of their study of 1,700 cases of headache is that a "neuropathic diathesis is an essential condition of almost all chronic headaches of the kind we are discussing."

How little the neurologic specialists will be mollified or convinced by the echoed and reechoed, reemphasized and rerepeated neuropathic diathesis, etc.—sops to Cerberus!—is illustrated by the fact that but two of the hearers ventured to join in the nonsensical "discussion" of the paper; one said "overuse of the eyes," while the

other mumbled the old, "migraine not cured or curable by glasses," "Heredity," Edity, Edity—to "the devil" with migraine! The three-headed official ophthalmic, pathologic, and neurologic Cerberus will yet growl, and bark (and bite) at the entrance, both of hell and of heaven, for many a long day and night to come before any Hercules will conquer him. The Sham Hercules will not make him wag his tail and lie down to sleep by any, *Good Doggie, Poor Doggie, Have a nice piece of meat!* Why?

Because, 1, It is poor clinical observation, nonverifiable assertion, contradicted by the vast majority of all cases, that "a neuropathic diathesis is an essential condition of the occurrence of headache, 'migraine,' etc." That is simply untrue. (I have certainly cured ten thousand cases of headache, migraine, etc., by glasses alone; when optician and patient obeyed I have as certainly not failed to cure in the vast majority of cases. Migraine is the easiest cured of all great diseases.) The truth is that the great body of such patients are the reverse of neuropathic. Neither their nerves nor their brains, nor their minds, are morbidly constituted, they have no pre-existing desires or tendencies toward neuroses, irritabilities, or unusual instabilities of the neurologic or cerebral mechanisms. They and their neural mechanisms fight against these, when plainly caused by real agencies beyond them, and their so-called "neurotic diatheses" are the violences of the efforts to withstand the injuries, to overcome disease, and to bring about health. Every

clinical fact in such patients shows these maligned nervous systems to be engaged in a noble struggle for physiologic normalism, to neutralize a morbid external source of pathology. They did not and do not give way because of inherent weakness and disease; they cry out with pain against the injuries done them, and they seize upon every ingenious device to neutralize, compensate for, and undo the insults. Headache and "migraine" are almost always, if not absolutely always the complaints and soreness of the healing processes after the hurtings; it is the most morbid philosophy to call headache, etc., *per se*, neuropathic, pathogenic, or demonstrations of preexisting disease of the nervous mechanisms. They are, on the contrary, perfect illustrations of the healing processes inherent in their own nature. The stupidity has long run into a wilful aspersion, at least into a silly indiscrimination, which sane intellects and sound physiology should have rapped over the knuckles a generation ago.

Because, 2, It is fatuous puerility to claim that a neuropathic diathesis underlies and conditions headache, migraine, etc., without stating or suggesting in what way such a "diathesis" or trend arose and how it acts. It would be just as enlightening and true to say, as the stranded internist indeed does say when it is impossible to give an understandable reason, that "circulation is at fault," or that "liver is bad," or to mumble "rheumatism," "latent gout," "malaria," "hysteria," "neurasthenia," and so on *ad infinitum*. It's just another way

of hiding a lazy mystery under a foolish word. It is banishing the devil to the upper octaves.

Because, 3, It is shirking the duty of therapeusis; it is a method of ridding oneself of the consciousness of therapeutic impotence, of avoiding the obligation to find the cause, by calling an unknown thing by a meaningless word.

Because, 4, It is an opprobrium of medicine, tremendously successful in other fields. When, for instance, medicine has found it could not explain the origin, or do anything to cure the greater afflictions of humanity, it gets the unlucky victims out of sight. In vast and expensive asylums it loads upon the community the keep and costly do-nothingness of the hideous numbers of epileptics, insane, blind, defectives, tramps, sponges, hopeless invalids, criminals, and incorrigibles. It cares not how many of these are caused by eyestrain, it only cares to be rid of responsibility for them, of the duty to seek out the cause, prevention and cure of these social and medical sins.

Because, 5, It glaringly ignores the great causes of disease, iterated and reiterated for a generation, easily discovered in the patient there before the doctor, who refuses to look for them, who refuses to see them when they are pointed out, who refuses to see their pathogenicity when perforce he acknowledges their presence. Take only a few of the most striking of such examples:

(a) *Lateral Spinal Curvature.*—It exists in at least 27 percent of all school children, and in about 80 percent of all young educated adults, and persists, unknown

untreated, scorned, throughout life in every adult who has acquired it. Is it a small matter, is it an affair of indifference, that there is a bending or 'kink in the column, the single support, which holds erect the entire body? What carpenter or architect allows his column, or his steel beam to be so kinked? Must it not weaken and make morbid the organism of the human body so strained, distorted, and nerve-wrecked? Who cares, what neurologist or general physician examines the back, knows how to examine it, in 20 or 50 millions of the people of the United States? Because it exists in so many, because the ignorers will not try to learn how it originates, nor how it may be prevented, nor how it may be cured, because of these no-knowledges, they consent to ignore its plain effects, even that it has effects, and instead they cry "nerves," "diathesis," "neurasthenia," "toxemia," "hysteria," and the rest.

(b) *Ill-ventilation of Houses, Sleeping Rooms, etc.*—Except in the tuberculotic, the physician does not narrowly inquire about this, and if, rarely, he does inquire, he will be assured by the patients that the ventilation is carefully attended to; and yet not one in ten does attend to it, and nine in ten are weakened and the blood poorly oxygenated by impure air.

(c) *Overconsumption of sugar, candy, sugared foods, starchy and syrupy plasters for the inside of the stomach (called "breakfast foods") etc.*, are the morbid realities underlying a lot of ignorances called neuropathies, diatheses, anemias, and all that. Who inquires?

(d) *Tobacco* is running a race with whisky in causing and in killing the "neuropathic." Its results are called by a dozen meaningless words.

(e) *Underclothing and overclothing* of the body, in obedience to fashion, is an unrecognized, ignored source of disease, or of the beginnings of disease. If for 24 hours, in winter, men should dress their legs, arms, shoulders, and chests as absurdly as women there would not be half enough physicians to doctor the sick.

(f) *Eyestrain*.—Messrs. Coggeshall and MacCoy are almost the only neurologists who think of it in the accounting. But even they scarcely allude to the impossibility of the patients of the world getting a proper pair of glasses, or of wearing them in a manner to bring about cures. That they testify to the cure of practically all migraine by glasses is an astounding fact, and shows that in Boston are infinitely better refractionists than elsewhere in the world. The testimony is glorious to the bravery of these Boston neurologists, to the skill of the Boston refractionists, to the expertness of the Boston opticians, to the good sense of the Boston patients. Nowhere else in the United States is such refraction done, nowhere else is such optical skill to be found, nowhere are such sensible patients. Elsewhere the diagnosis of the error of refraction is usually so incorrect that "the correcting lenses" do not correct, the optician's work is so wretched as to spoil the few correctly prescribed glasses, the patients so careless that no good can come from the few at-one-time-rightly-ordered and well-

adjusted lenses. Elsewhere the oculists pay no attention to subnormal accommodation which is the only means of cure in many cases; elsewhere incurable "ophthalamo-vascular choke" exists in a certain proportion of cases which causes unrelievable "neurasthenia," "anemia," "autotoxemia," etc.; elsewhere there is a small proportion of hysterics who enjoy bad health and "neurasthenia," and who would not be rid of it for all the world's wealth and all its health.

Because, 6, According to the quotation made at the outset the neuropathy of the neuropathic patient, existing prior to the migraine or headache, and constituting its unexceptionable conditions and basis, is, at least often, due to eyestrain. What a game of now-you-see-it-and-now-you-don't! What a delicious instance of reasoning in a circle: 1. Eyestrain produces neuropathy; 2. Neuropathy is the condition of headache; 3. Headache is "practically invariably" caused by eyestrain! Anybody except a neurologist must laugh at that logic. And yet the logic is solemnly profoundly true—in a fashion. It is true that the childhood and life-long eyestrain may produce the condition miscalled neuropathic tendency, anemia, toxemia, neurasthenia, and the rest. The emphasis should have been laid on that awful fact for pages and pages, but it is only slipped in as a parenthetical suggestion of an interpolated and subordinate clause. It is true that the ill-health and lessened resisting power is through years caused by eyestrain; that should have been repeated and its variations played ten

times instead of once vaguely inferred by a grace-note. It is true that this eyestrain-made "neuropathy" lessens the resisting power due to the always present and increasing eyestrain. It is also true that, while the patient still lives, this vicious cycle of disease may be usually, and in the young always cut short by correct spectacles. But why, except as a sop to Cerberus, the interjection of the neuropathy as condition or cause?

Because, 7, The neuropathic-basis criers, the neurasthen a-anemia-toxemia exaggerators, have no suspicion that their muddle is psychologic not clinical. Their theories are due to the psychologic and pathologic necessities of their own minds, not to the commands of external clinical facts. Their clinical facts, indeed, do not usually exist, but there does exist a law of the mind in most people, especially in "medical" "leaders" which requires them to deny, at first, new medical truth, and curse the truth-finder. Then, when compelled to do so, they yield, later, unwilling and grudging concessions, but always with admissions to old prejudices and acknowledgments to established errors. It is al a sort of psychic strabismus, a looking two ways at one instant. The squint could have been, and should have been prevented, but once callously and negligently established "tenotomy with advancement" is urgently needed upon those so pitifully and pitiabley afflicted.

Moreover, this delusion and illusion, this superstition of a malign heredity, of an unexplainable diathesis, of a neuropathy hidden by a wicked fate in the depths of

the organism, is cruel, most cruel. And as it is for the most part untrue, it is a needless and gratuitous crime. If physicians had a right and righteous human kindness, if they loved their fellow men, they would not thus torture them and vastly multiply the number of sufferers. Because everywhere throughout the world there is already enough woe and death allotted by fate and wrong to mortals, without any such cowardly and impertinent addition. Everywhere, and all about us there are thousands secretly harboring in their harassed souls the fear, nay, the belief, in some hereditary taint, some latent insanity, some inobviable disease, some malignant coming fatality. The absurd emphasis of the silly and ludicrous theory of a universal "neuropathic diathesis," of a developing "malignant heredity," of a deep-seated morbid neurotic endowment, waiting to pounce down upon effort—this, in multitudes of breasts, is a concealed horror already too intolerable, paralyzing resolve, and crushing hope. None knows much of anything about heredity, and those who are materialists and hence pessimists, know the least about its so-called laws. The best science confesses there is not a single one of such "laws" not contradicted every day by clinical experience. Let us comfort the sick, not curse them. The neuropathic diathesis and neurotic-inheritance theories are the unwarrantable blunders or crimes of the witless or unwitting cursers.

SHOULD THE GENERAL PRACTITIONER
STUDY REFRACTION?

CHAPTER XVIII.

SHOULD THE GENERAL PRACTITIONER STUDY REFRACTION ?¹

I have been receiving so many letters from practitioners and from young men beginning medical life, asking advice in reference to taking up the study of ophthalmology, that the answerings have become frequent and onerous. To save repetition and time I purpose to publish the following general reply.

My answer to the inquiry of the above caption is, Yes! It may be you are not adapted to the work; it is possible that you will add one more to the already absurdly large number of "ophthalmic surgeons," success-hunters, "exaggeration"-criers, and refraction decriers—lots of good ideals and motives go wrong, lots of good men go wrong; we can't help that, and then, perhaps, after all, the ideals and the men were not so very good and very strong, and deserved failure.

The reason for the *Yes* is that of our 80 million people at least one-half need spectacles. At present it is utterly impossible for any but a small fraction of these needy ones to get right and accurate spectacles. Wrong ones increase disease and there are millions of wrong ones now being born. If at the lowest 30 millions of Americans are suffering and handicapped by the want of proper glasses, then surely not over one million more

¹*New York State Journal of Medicine*, December, 1907

have secured their due of relief. There are thousands of hundred square-mile stretches of our country in which there is not a skilled refractionist. In most cities not one in a hundred are correctly "glasses," although hundreds of oculists and opticians are begging for the business. In some large cities, and in many smaller ones, there is not a man who will or can estimate and prescribe for ametropia correctly. In smaller cities and in villages there is usually no one who pretends to do so, and in the country live millions who cannot even go to those who falsely pretend. If competent to do the work, and filled with the right spirit, ten thousand refractionists could set forth in one day, and each would soon be happy in his work of relieving human lives of disease and trouble, and within a year each could be making at the least from \$2,000 to \$5,000 a year.

The thoughtful and helpful editor of the *Medical Record* has so happily expressed one phase of the truth that I cannot forbear repeating here his entire editorial taken from his issue of June 22, 1907.

There is an enormous amount of suffering among the rural population of this country, especially the wives and daughters of farmers, due to uncorrected astigmatism and other ocular defects. On first thought one may be inclined to doubt the correctness of this statement, for the farmer is supposed to lead an outdoor life and to be little given to literary pursuits. But this is not true of many, if not the majority, of the rural population. In most farm houses of the better class one will find the weekly political paper and one or more agricultural or poultry journals, and in not a few several of the magazines and weekly story papers are also taken and faithfully

read from cover to cover. Moreover, the women have their sewing and their mending and their fancy work—more eyestrain, in fact, than many of their well-to-do and perhaps better educated sisters in the city. Numbers of these poor women are martyrs to headache, gastric disorders, and other ocular reflexes, ignorant for the most part of the cause of their suffering and unable, even if they suspect that their eyes are “weak,” to obtain relief. At the best, or worst, they go to the country store and select from a small assortment the spectacles which they think they need, and their last state is perhaps worse than the first. The country doctor is seldom able to help them, for as a rule, up-to-date, sensible, and skillful practitioner as he is, he lacks the practical training and experience necessary for the correction of errors of refraction; and even if he has the qualifications needed for such work, the demands of a country practice leave him no time for the tedious work of testing eyes.

Herein lies an opportunity for relieving suffering and attaining material success which is worthy of the consideration of the recent graduate in medicine: Specialists must, from the nature of their restricted practice, live only in the cities and larger towns, where the number of consultations are sufficient to occupy their time and afford them a living practice. But in the case of refractive errors especially, which are still so wrongly regarded as among the minor ills, the farmer and his women folk cannot afford the time and expense of a journey to the city in search of relief. There is need here for missionary effort, and, contrary to the rule of most missionary endeavor, the man who undertakes such a needed work will reap an ample reward. There is an opening in nearly every county of every State in the Union for a thoroughly trained and skillful oculist who will establish a circuit of small towns in each of which he has an office in which he may be consulted, say two days a month or a fortnight, by the country people in the district. The man should be an educated physician, with hospital training—as should be every specialist—and preferably with an experience of several years in general practice, during which time he has devoted

his unoccupied hours to a study of the eye and its diseases and of refractive errors and the means of their detection and correction. He should indeed be the equal of any of his fellow specialists practising in the city. His way at first may not be easy, for he will be a missionary, and his task will be to educate the people, through their medical advisers, to an appreciation of the rôle of eyestrain in the causation of many of the headaches and "dyspepsias" from which they suffer. He must be tactful in his relations with the practitioners in the towns embraced in his circuit, and should, of course, confine himself strictly to his specialty, and not encroach on the general practice of his colleagues. It will not be long, however, before such an "itinerant oculist," if he is skillful, and as honest and tactful as he is skillful, will make his way. One successful case in each town will establish his reputation, for farmer's wives are great gossips, and if he is careful to respect the rights of the local physicians they will be only too pleased to send him their teasing cases and "chronics" that their medicines have not relieved and which they will themselves soon learn to recognize as "eyestrain" cases and gladly refer to the oculist for relief.

There is nothing unethical in such a practice. Traveling quacks have caused honest physicians and intelligent laymen to regard the "itinerant" with suspicion, but the origin of all specialism was in quackery, and it was only when reputable practitioners began to devote themselves exclusively to a study of special diseases that the stigma attaching to special practice was removed. There are even now many reputable physicians and specialists who have offices in two or more places in the same city or in different cities, and a slight extension of this principle by educated, earnest, and honest young ophthalmologists will cause the itinerant oculist (not optician) to be regarded as a valued and honorable member of his profession.

Most of my letters have come from men who have been in general practice for some years, but others

are from undergraduates and those just starting in practice. The latter class of men I always beg to give at least two years to the study of ophthalmology before going out as missionaries. After that the advice to the not-yet-practising, and to those with established general practice, is much the same.

Almost always it comes sharply down to a question of money. How are the time and the expenses to be paid for? To the younger or inexperienced man that condition may be met:

1. By securing an internship in some hospital—a capital plan.
2. By acting as assistant to some oculist with established practice.
3. By unconquerable resolve and will to meet and overcome the obstacles.

To those who deserve to succeed the stern lineaments and denials of Fate grow softer, and finally she turns to help, when she finds she cannot scare the intrepid one. Hardships become unconquerable to weaklings.

And the overcoming of obstacles will also depend largely upon what kind of motive spurs your resolve. One may hope you will be conquered by the obstacles, and will fail, if you have not something in your soul of benevolence, the love of humanity, the knowledge, inspiring heroism, that in refraction is a long and shamefully despised but a mighty means of beneficence. If you want only Success, with a big S, if you desire only “an elegant city practice,” if you are after medical politics,

professorships, fame, LL. D. degrees, presidencies of medical societies, and all that, if you find in your heart nothing but plain appetites and selfishness—well, perhaps you'd better then go hang yourself! You would thereby do more good to medicine and to the world than to proceed.

To the physician with practice already well or fairly established, I counsel not giving it up if it is in any way possible to hold it. The financial reason may demand it, and over and above that is the advantage gained from knowledge of general diseases and the opportunity it gives to show patients that glasses will cure when drugs, etc., will not; that innumerable patients are pitifully, and pitilessly, passed through the hands of medical men unhelpt, and that the sole way to help them is by glasses. General practice is a happy vantage-ground for the refractionist. Of course, one must leave the practice in the hands of some other while making the necessary long visits to the cities in the hunt for knowledge and skill in ophthalmometry. If one is on the good terms with neighbors which is desirable, this transfer and lending of practice is usually feasible. Visits of at least six weeks to the city hospitals and to the post-graduate schools, etc., should be planned and carried out, and should also be as frequent as possible. It goes without saying that if one resolves to break with general practice and give all the time required to the special study, then the two years of continuous study is most advisable.

How soon may one trust himself to commence refract-

ing his home patients during the time of preparation, and when he comes back to practise from the cities? To that I should return with a "Yankee reply." If you begin to refract soon will you stop the city visits soon? If so don't begin soon. But if you will keep up the month-or-two-long city visits for several years, then it would be well to try your hand at once upon cases, even after the first city-time of study. The reason for this apparently unconservative advice is, in a word, this: You can't do worse refraction than is being done by the neighboring optician and "the leading ophthalmic surgeon" of the next city. As the chances are that you will do far better than these, duty to humanity counsels that you at once try to help people out of the bad predicament we as a profession have put them into. But you must study hard, think hard, be most careful, seek advice constantly, go over the work again and again (regardless of cost), and keep up the study-trips to the city, all, until you are sure of yourself, not because of the security of egotism, but that of knowledge, and the results of treatment.

In order to begin refractions at home thus early, one, of course, must devote the early studies entirely to refraction. Leave operations, pathology, and even inflammatory disease aside at first, and learn the art of diagnosing ametropia and of prescribing lenses. Precisely that is what the world of sufferers needs. They need far less that you should become an "ophthalmic surgeon." So soon as you've got that art well in hand then go at the pig's

eyes, see all the operations you may, learn all possible about inflammatory diseases.

Where shall you begin to study? As you must begin with refraction there can be only one answer: In Philadelphia. Things are bad enough there, Heaven knows, but they are so bad elsewhere that Heaven couldn't know. By the art of refraction, of course, is meant subjective refraction, supplemented by retinoscopy when the subjective method is impossible. Only two or three men in all Europe know anything about this art, and if you went there to study you'd never find them. The same may be said of New York, Chicago, etc. Some day some discerning philanthropist will give a million or two dollars to found a school of refraction. And if it should get into the right hands it will do more good to humanity than all the hundreds of millions that have been given to "charity" in the last generation. In the meantime we must wait and blunder along as best we may, until an aroused and repentant profession tires of anatomic pathology, laboratories, "Leaders," and east wind.

Because, when in your acquirement of this art, you come in contact with authorities in ophthalmology you will discover an amazing thing: Ophthalmology, long "pointed to with pride" as the perfected example, a true realized ideal, of medical science, accurate and mathematic in diagnosis and treatment, this hosannaed ophthalmology does not exist. The claim is arrant nonsense. So far as refraction is concerned, it is the most inaccurate of all unsciences, a most ridiculous farce. Should the

experiment be carried out with skill and cunning, any one of a million of sufferers from "migraine" giving the same symptoms, and going to 25 different leading physicians, would be ordered 25 radically different treatments: the stomach-man would test-meal her and wash her stomach out; the rest-cure man would put her into his private hospital; the nerve-man would say, *neurasthenia*, *Good morning*; the surgeon would gastrotomize her; the gynecologist would gynecologize her; the appendix-man would deappendicize her; others would make her a morphinomaniac; she would be phenacetinized, antikamnized, X-rayed, and laboratorized in a dozen ways; she would be wet-packed and talked learnedly about by one, dieted to death by a number, "passed on" by all. Now, if the same patient were sent to 25 leading oculists of the cities the orders would be as variant and opposed; one would at once tenotomize, and keep on doing it, *ad infinitum*; others would "advance," or tenotomize different muscles; one would send her to the general physician, or play the part himself; others would give glasses with prisms, placed one way, or placed another way; others would ophthalmometerize her, or retinoscope her; some would give no attention to astigmatism; some would give one axis, some other axes; all would give different amounts both of the spherical and of the cylindric corrections, and the extremes would differ by two or three diopters; some would ignore presbyopia, or not order bifocal lenses; the frames of the patient would turn even good work into bad in the majority of cases, and few

would attend to the optician's part with the care required to cure. In a word, the 25 (or the 100 indeed) would differ from each other by measures and amounts which constitute the essentials of eyestrain therapeutics. Success and failure are only by means of any one of these differences. If one is right, the other 24 or 99 are wrong. Such is ophthalmic science to-day! The picture is not overdrawn or exaggerated.

My last correspondent asks: "*How, where, of whom, may I learn how to be sure that the prescription I write for glasses is the single correct one which will cure my patient?*" Well, that is the essence of the matter! That is the whole difficulty. It will never be possible in an absolute way until we have an authoritative school or college of refraction, and until, as a result of it, there is a sufficient number of men in agreement as to the science and art to form a body of authoritative opinion. Every oculist has learned to do his refraction-work in a differing and peculiar way, from all sorts of sources and authorities, but he has been mostly self-taught. Hence there is no science, no agreement; all is utter and absolute individualism. You will be compelled, for the most part, to teach yourself, the same as the rest of us have done. By our aid you can now learn to short-cut better than we did. I have set forth about 80 different sources of error in refraction work, 80 causes "why glasses failed to cure. I believe any one of these 80 points neglected may bring failure, and yet one-half of them at least are wholly neglected by the majority of oculists. I trace all of my

success in curing patients to the strict observance of each one. It is not an impossible task, by any means, not even a difficult one, and if you will religiously carry it out you will not be at all worried by the assumed superiority or contumely of the leaders, nor by their outrageous differences from one another. If you carry it out you will speedily find gratitude beyond desire from a numerous and ever-increasing body of patients.

One of your greatest difficulties will come from the unaccountable blundering and botchwork of the opticians. If you rely upon them for making and fitting your glasses, you will, as a rule, find an early grave. In some cities men who know their business may be found. We are exceptionally fortunate in Philadelphia. Generally the optician is forgetting his chief function and duty of fitting glasses, for the thing he never can do—the prescribing of glasses. Many opticians can prescribe far better than many oculists, but that does not change the law that the prescription of glasses, in a civilized civilization, must be a medical affair. If you do not live in a big city, you would better learn the great art of adjusting spectacles. Much of your success and failure will depend upon this art.

DOUBLING THE READING POWER IN
AMBLYOPIA BY THE CROSSED-
CYLINDER "READER."

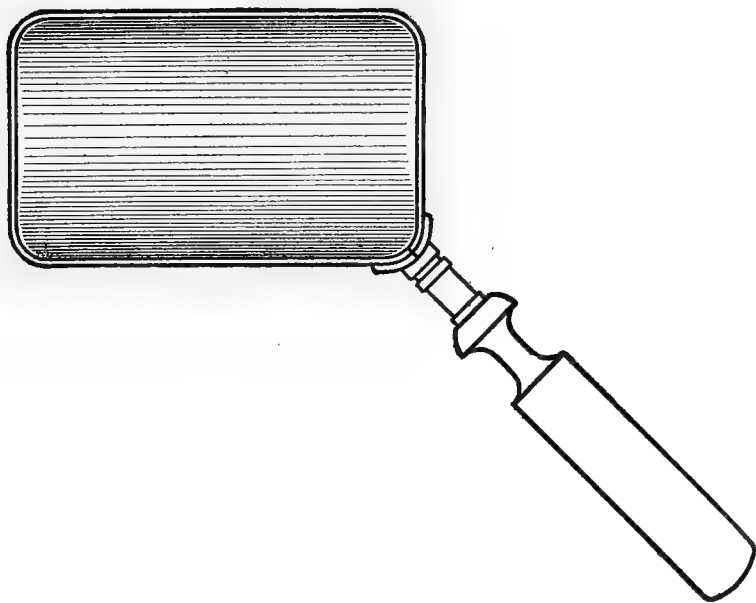
CHAPTER XIX.

DOUBLING THE READING POWER IN AMBLYOPIA BY THE CROSSED-CYLINDER "READER."¹

It is painful and astonishing to learn how great is the number of patients with incurable dimness of vision handed down to us by a medical generation sinfully indifferent to life's most precious thing, the good vision of patients. Scientific spectacles were necessary to preserve the all-important visual acuteness, but such spectacles were sneered at as proofs of exaggeration and faddism. Eyes were allowed to become strabismic and thus half or wholly blind; the retinal sensitiveness was ruined because "astigmatism, too little to correct," was ignored; ocular disease was permitted because it was not thought worth while to prevent it; corneas were clouded with leukomas because keratitis, conjunctivitis, blepharitis, etc., were without causes and not to be prevented—and so on, and so on. All this time the great leaders said ametropia and eyestrain caused no ocular or systemic diseases, and that the only need of correcting the ametropia was to secure better vision; and all this time these leaders did not better vision, but worsened it in millions of patients treated, mistreated, and not treated.

¹*American Medicine*, New Series, Vol. II, No. 12, pages 695-696, December, 1907.

In a great "civilized" nation thousands of patients to-day are made to sit while hot steam is blown upon their eyes, first inflamed because of uncorrected ametropia. The ametropia is ignored, the hot steam cannot cure. In another less "civilized" country the great little leaders



of little great ophthalmologic societies, and the little editors of ophthalmic and other journals enter into a conspiracy of silence to increase the ocular diseases they are officially supposed to cure, and to prevent.

So the past is the present, because the amblyopia of

these patients is being created to hand down to the coming generation.

The greater part of the affliction of these pitiful victims of prejudice and unscience consists of inability to read the usual-sized print of newspapers and books. Those who have made them half-blind will, of course, have no interest in lessening their infirmity or bettering their lot. If it is suggested to them, they may assent languidly to the use of a "reading glass." But the needed correction of astigmatism and anisometropia will not have been seen to in advance. And the reading glass will be a huge or a tiny biconvex lens which, while it magnifies a little the sizes of the letters, will much more distort the images, thus adding to the ocular strain.

For some years I have been in the habit of giving amblyopic patients, when their deficient acuteness is not too great, a much increased ease and length of time of reading by means of a rectangular crossed-cylinder lens about 3×4 inches. This device, the product of the French workshops, magnifies uniformly the entire line of type, and without distortion. It is so light that it may be held for a considerable time in the hand without fatigue and is placed between the eyes and page at the proper focal distance. It is most helpful to those having a visual acuteness of from $20/50$ to $10/200$, enabling them to do at least two or three times more reading and in many cases to read print before indecipherable.

Plans are also under way to place the lens in a stationary holder adjusted to the position of the head or body

chosen, and without holding it with the hand. This device may be attached to the chair, or fixed in a stand upon the floor by the chair. In this way even sewing might be made possible.

The usual method of constructing these lenses is with the handle inserted in the center of the longer side at right angles to it; but this compels a cramped and fatiguing position of the grasping hand. I have asked the opticians, Messrs. Wall and Ochs, of Philadelphia, to have a supply so made that the handle is inserted as shown in the annexed cut, whereby it is held in the proper position more easily and longer. The frame inclosing the lens, as well as the handle, is dull black, differing in this respect from the bright metal commonly employed. The handle is octagonal so that it is held more easily in the hand than if it were made round. It has proved to be a most helpful instrument for those in the plight described.

FIFTY-SEVEN VARIETIES OF MEDICAL AND
OPHTHALMIC BLUNDERS.

CHAPTER XX.

FIFTY-SEVEN VARIETIES OF MEDICAL AND OPHTHALMIC BLUNDERS.¹

For twenty or thirty years medical leaders and those whom they had led have been warned that a truth of enormous importance, both to the profession and to the world, has been neglected and scorned. Now that the lay world and an increasing number of medical men have heeded the warning and find the new truth to be a fact, the leaders and the led, still pertinacious in their sin (for ignorance in a scientific man is itself sin), say that the little truth, if any at all, in the contention is ridiculously exaggerated. That the exaggeration even of the most reckless propagandist is an understatement of the real facts—such is the thesis of this paper. Some of the causes and details of the professional error in failing to see this truth—the ocular origin of so much of the prevalent disease and suffering of civilization—are as follows:²

1. *The Darwinians and Evolutionists have failed to rec-*

¹As the medical journals would probably not have accepted this article, it was first published by myself, in 1909.

²The statements made in the following pages are the lessons, ever reiterated, and forced upon my attention by the examinations of many thousands of spectacles and prescriptions, and case-histories of ten or fifteen thousand patients previously under the care of other oculists, American and European. Patients usually begin their histories with, "I have been to a dozen or two physicians and none said a word about eyes," or "I have tried five or ten oculists, with little or no relief."

ognize that the exclusion of the unfit consists in large measure of the exclusion of the visually unfit.—Physiological and perfect vision is the condition of organismal and social validity and progress—especially in civilized life. Pathologic vision (eyestrain and its sequels) is the most potent and frequent source of nonadaptation to the environment, and the most active reason of unfitness in the struggle for existence. The myopia, amblyopia, and systemic reflexes of eyestrain are lessening social and national efficiency and life-force by at least 50 percent. It was the great merit of Darwinism to show the effect of the environment upon man, but it will be a far greater merit for some future Darwin to show that a man's body is the most important part of his environment. Of all the organs of the body those of vision are the most important and mandatory. There can be no preservation of the body, no precision in placing the feet or hands, no flight or alighting of birds, no successful fightings, games, or work, either of animal or of man, if the eyes are too imperfect and vision too inaccurate, and a majority of human eyes are thus too inaccurate and too imperfect. A defect so small as $1/200$ of an inch in their diameter may endanger and even wreck the life. The oculists' common failure, *e.g.*, to place the axis of astigmatism within ten degrees may cost happiness and health. The attempts of the brain to see and to carry on life with such faulty eyes, or with such inaccurate spectacles as are usually worn, may produce the severest diseases both of body and mind and may even cause death.

2. *Apostasy of those once converted, because of intimidation, cowardice, personal ambition, etc.*—There are men famous in medicine who have emphatically recorded their conviction that eyestrain is producing general disease, but who, finding themselves in advance of their time and unable to win fame and success by means of the truth, or who were unable to have good refraction-work done for their patients, have reverted to silence, to denial, to a non-practice of the faith that was in them, and to a condemnation of those who remained loyal to their former faith. They have not dared to oppose too openly because their own early published convictions would have aroused contempt of their “later discoveries,”—“Wrong once, wrong always” closes their mouths, and thus the art of hiding an early scientific error under a new but more popular one is diligently practised. These men illustrate the proverbial capacity to turn a blind eye to what they do not wish to see. Such renegades have at present a thousand imitators who are silent as to eyestrain in all the languages of medical science and art. Unfortunately, the plan condemns the patients to suffer.

3. *Atheism, Materialism, and Fatalism*, weakly accepted by so many leading physicians and oculists, result too frequently in therapeutic nihilism; in the belief in “the iron laws of heredity”; in a hideous selfishness; in an indifference to patients, their diseases, and their personal problems; and in encouragement of a vicious homage to the rich and influential classes. Materialism and determinism discourage therapeutics as well as ethics. Why

love one's fellow-men or search into the causes of their ills if these are inescapable? "Once a neurasthenic, always a neurasthenic" is an illustration of the too common pessimism of fashionable therapeutics. To look carefully is to be amazed that many thousands of patients are believed incurable and are therefore shut out of sight and mind in institutions. Think of the enormous number of the insane in (and out of) asylums, of epileptics, of the invalided, of the prematurely senile, of the blind, and the deaf-and-dumb, etc., who are encouraged in dependence, instead of being helped to earn their own living.

4. *The conservatism of bigotry is for the conserving of the bigot*, and is not due to love of or care for "science." It is well to guard against the acceptance of new and erroneous theories, but in medicine a new truth *not* accepted means the death and suffering of multitudes. The fifty years during which the "leaders" refused to recognize and practise the published truth of the role of the mosquito in transmitting yellow fever cost millions of lives. The thirty or more years they have refused to admit and practise the truth of the eyestrain origin of many systemic diseases have been far more expensive and shameful. A famous physician with an uneasy conscience has said that there are great and vitally important truths which may not be acknowledged as truth by medical and scientific men. As to authority in medicine it is evident that the established or dominant opinion must come from a dead not from a progressive science.

The rejection of authority is therefore the beginning of advance. If not based upon religion and humanitarianism the rejection may be anarchistic, but —.

5. *The furious multiplication of new theories of disease*, and the overreachings of specialists, have made the careful too indiscriminate in their skepticism, have begotten therapeutic nihilism, and have turned the conservatives into bigots. Tyndall said:

“We often complain of the scorn of theories by practical men, and to convince them we triumphantly point to the immense service of our heroes. The practical men, however, will not be convinced; and why? Simply because of ten well-known theories nine deserve nothing better than contempt. Our intellectual heroes build their theories upon enduring facts; the mass of facts which they use in order to guess the law is a measure of individual ability, not the touchstone of the correctness of their system.”

6. *Exhausting all other theories of pathogenesis before the oculist is appealed to.*—This habit is as common as it is inhuman. All the drugs and all possible methods of treating diseases plainly due to eyestrain are tried until the patient's health, patience, and money are exhausted, and before “You might go to some oculist” is suggested. Some physicians who cannot get their patients cured by their “favorite oculist,” or who do not want them cured at all, advise rest-cures (in which the cleverness lies in the nonuse of the eyes and of scoliotic spines, of course!), dietetic cures, etc., until Emmanualism, faith-cure, and Mrs. Eddy at last come into their own.

7. *The rage for new fads and fancies instead of exhausting the reach and validity of old truths.*—“Up-to-

dateness," the catching at the startling, the cult of newspaper medicine, the vieing with the Eddyites, Emmanuelism, outdoing the charlatans—where is this trend and practice not illustrated? On the other hand, innumerable scientific researches, treatises, and text-books setting forth the truths of physical and physiological optics are as much ignored by oculists in their actual practice as if Helmholtzes had never existed and spectacles had never been invented. It has never occurred to historic ophthalmology or to nine-tenths of its present-day "leaders" to extend the truths of physiological optics into the field of pathology. It is childish medicine to invent or to follow foolish new theories instead of relieving old sufferings by old truths.

8. *The enormous, undigested, unassimilated, unknown literature*—there are some 1,500 medical serials—this makes it impossible for the practitioner to glean a knowledge of the testimonials to the truth that have been made by thousands, and which contradict the sneers ("Unproved," "Exaggeration," etc.) of the ignorers. Money and zeal are needed to collect and lay before the world the vast mass of literature, and make known the scientific basis of the faith of the "eyestrain faddist." At present the seeker after knowledge, if he desired it, finds it utterly impossible to learn the facts. The desire is of course scarcely ever present.

9. *The exclusion from official or authoritative journals of the articles and testimonies of reputable physicians.*—Because the "eyestrain crank" preaches an unfashion-

able doctrine against the prejudices of the officials and leaders, the subservient and self-advertising editor (as I am told by many writers) finds the contribution in favor of eyestrain "not available." But any "Voice from the Tombs" against it is welcomed.

10. *The urbanization of the oculists* is an evil coextensive with that of the urbanization of any class of men. That two-thirds of our people living in small cities, villages, towns, or the country, are almost utterly neglected by the city-flocking oculists, is an illustration that not the welfare of humanity but that of the oculist determines their "settling." The evils are heightened by the desire for club-life, automobiles, fashionable practice, and the poor patient is left to the poor doctor or to the hospitals and the dispensaries. Ten thousand oculists taking up practice to-morrow among these submerged two-thirds could do more good than their city colleagues; and they would make good livings at once—on condition, however, that they were conscientious and expert refractionists. But we must long listen to the battle cries, "Down with the optician!" "Lengthen the courses at the medical colleges!" "Alas, the overcrowded profession!"

11. *Pathologic hospitalism*, which encourages the dependence and socialism of the patient, and leads to experimentation, rivalry, medical politics, and ultimately to the degradation of the profession, is also a great source of ophthalmic bigotry and abuse. Out of thousands of spectacles prescribed by hospital and dispensary doctors

(students and beginners, mostly), I have never found one capable of curing eye-strain.

12. *The excesses of surgery.*—Surgery is the despair of medicine; that is, surgery should never be permitted until all other methods of cure are exhausted or demonstrated as inefficient. There are many supposed surgical diseases patently or probably due indirectly to eyestrain or scoliosis (both preventable), but the surgeon too often does not inquire as to their causes. His function is to operate! As to the eyes, ordinary senile cataract is unquestionably due to eyestrain, likewise glaucoma, and many other ocular diseases. The ophthalmic tenotomist (for heterophoria) has long been a disgrace which only professional ignoring can forget. Squint is of course caused by ametropia, so that the ophthalmic surgeon is fast becoming a stranded relic of medieval medicine. The first duty of the “ophthalmic surgeon” is to prevent ophthalmic surgery.

13. *Overinterest in the organic diseases*, with almost complete inattention to the pathology of the functional diseases; exclusive attention to the “seed” and disregard of the equally important “soil”; ignorance of the fact that in pathology the soil of functional disease is almost the maker of the seed of organic disease,—such are the blunders of the pathologists which posterity will not readily excuse. The functional diseases roughly grouped under the name “Migrain,” alone cause more suffering and crippling of life-force than all the organic diseases.

14. *Overinterest in the terminal diseases*, with neglect

of the causes which led to them has been a powerful influence in leading to error and in hiding the truth. The "Causes of Death" given by vital statisticians are often erroneous and mistaken diagnoses. They are generally of no value in leading to a reduction of the death-rate or in lessening suffering, and are scarcely ever used to interpret their only significant role—the study of precedents and origins. Death is by no means the greatest of the diseases. It comes but once to a person; and is short and painless, while the functional disease begins early, endures for the lifetime, and causes infinite suffering; at last it hands the patient over to the executioner, *i.e.*, the terminal disease.

15. *The role of sin in pathogenesis.*—Without sin there would be no venereal disease, and far less of the morbid consequences of the misuse of alcohol and drugs, of needless blindness, unnecessary and preventable crime, slum-life, insanity, epilepsy, and all the rest. The influence of eyestrain, and of lateral spinal curvature (caused by ocular function and malfunction) in the production of these diseases is sometimes the predominating one.

16. *Typical and atypical diseases.*—It is amazing that while the medical teachers, the essay-readers at medical conventions, and the text-book writers talk eruditely and *ad infinitum* about typical diseases, the truth is that few cases of disease are typical; certainly the vast majority of patients complain of atypical, functional, temporary, or at least mysterious ailments. It is pre-

cisely such cases as indigestion, malassimilation, headache, "nervousness," "breakdown," sleeplessness, ill-defined mental troubles, depression, "the blues," "hysteria, loss of memory, confusion of mind, morbid and causeless dread and fear, irritability, "neurasthenia," and the rest of the long list, which subside when eyestrain is stopped.

17. *Professional trades-unionism masking as professional ethics.*—I was recently asked to aid in preventing the opticians from securing the right to prescribe incorrect spectacles and eye-glasses. I agreed to help this most worthy cause, but added that my little help would be on condition that my correspondent would aid in another great reform—that, namely, of preventing the leading and fashionable ophthalmologists from prescribing as bad glasses as their would-be rivals, the opticians. I was abused and insulted by my correspondent for my "unprofessionalism." I replied that the "leading," text-book-making authorities in ophthalmology were themselves to blame. They had long and vehemently been urging that a mydriatic ("poison-drops") is not necessary for diagnosing errors of refraction, and with equal emphasis denying that ametropia had any bad results to eyes or general health. Governor Hughes was therefore not only justified, but was urged by these professional leaders to allow the claim of the "Optometrists." The trades-union spirit, or something worse, is also shown in the recent attitude of so many medical men toward the nursing profession.

18. *The amazing number of crowded sanitariums, homes, private hospitals, etc.,* are the greatest opprobrium of medicine. The plainest commercialism is usually in evidence; often they are carried on or controlled by laymen; the causes of disease are too rarely sought for; the treatment is usually designed to detract attention from such causes. A majority of their inmates have directly or indirectly been brought there by eyestrain and scoliosis.

19. *Begin with the Child!*—In most reforms the solution is to be found only by attacking the evil in the child. In medicine it is particularly so, in ophthalmology assuredly so. How many eyes are ruined from want of glasses before the age of ten or twelve, not infrequently before the age of five. Spinal curvature is well under way by eight or ten. The child's vomitings, denutritional diseases, truancies, "nervousness," dislike of study, amblyopia, choreas, morbid habits, night-terrors, nocturnal enuresis, anorexia, etc., etc., caused by eyestrain, are the sure forerunners of still graver symptoms in the adult. "Sickheadaches ever since I can remember," is the statement of the majority of patients. Squint can be prevented only by glasses, sometimes as early as at one year of age.

20. *The "heredity" and "diathesis" humbug* is the fashionable pathogenesis of those incapable of curing or of wishing to cure. The "neurotic diathesis" is a new-fashioned "devil" of the old-fashioned pianotuners applied to the unknown cause of disease. Eye-

strain and backstrain, if the ignorers desired and tried to know, explain the majority of diseases now classed as neurasthenia, neuroticism, breakdown, headache, mental abnormalism, denutrition, gastric diseases, dyspepsia, migraine, and even many so-called surgical diseases. When this fact becomes known (as it is fast becoming, by the laity rather than by the profession) there will be a revolution in both the lay and medical world. There is now a great hidden fright among the "leaders" and "conservatives," lest the revolution is altogether too eminent. Let it come speedily!

21. *The customary history-taking of the stereotyped variety* is calculated to avoid genuine history-taking, and to conceal, instead of reveal the true nature of the patient's disease. The life history, or biographic clinic, is unknown and all facts that point to causes are omitted. Usually no history is made at all, and none subsequent to the first visit—it would not be pleasant reading! A hundred symptoms caused by eyestrain are not even mentioned, and whither the patient goes afterward, or if any of these unknown symptoms are relieved, what the other doctors do for the patient, etc.—these are matters which do not concern the "leading" oculist or the great "ophthalmic surgeon."

22. *Greed and the method of charging* are responsible for a majority of the failures to cure eyestrain. For a generation the outrageous charges of those who had the name, the fame, and the monopoly of refraction-work have been the scandal of ophthalmology and the curse

of the community. A few thousand conscientious men with the love of their fellow-men in their hearts would soon end that abuse. The office charge for each visit is plainly a fraud. The single charge for a case (little or much) demanding the necessary number of visits for a month or two, is the sole way in which to do the patient good, to insure skilled work, and to treat him honorably. A famous doctor, taking a vacation, left his practice in the hands of a colleague with the instruction that glasses were never to be prescribed before eight visits had been made at \$10.00 each. There is no true success possible in refraction work, unless, without extra charge, patients are urged to call often for some months, in order that ill-fitting glasses, a dozen complications, subsequent changes, disobedience to orders, etc., may be avoided. This lessens the income, perhaps, but are we practising medicine for money alone? The universal custom would imply that it is so.

23. *The unrecognized life-crisis, or disease-crisis*, which usually occurs between the ages of forty and fifty, beyond which is invalidism, life failure, the terminal disease, suicide, etc., or recovered health, is in almost all cases caused and conditioned by presbyopia. The insult of presbyopia added to the preexistent and ingravescent eyestrain of ametropia, is for many, more than the organism can overcome. If the unruined vital powers are sufficient to carry the patient well into the presbyopic period, he may with accepted senility and a change of occupation live a prolonged period of nonsuffering old

age Old Dr. Darwin said if a man put on flesh at about fifty, he was good for a long life. After a life of suffering from eyestrain sudden cures are scarcely to be expected. Operations of many kinds, drugs, and other vicious habits have killed reaction and there must be a long struggle against the habit of disease, and against secondary diseases caused by chronic eyestrain.

24. *The people's ignorance of eyestrain consequences* is second only to that of oculists and leading physicians. In a recent number of the *Fortnightly Review* a writer tries heroically to list the possible methods whereby a patient suffering from headache may try to rid himself of it. In this exhaustive listing not a word is said about eyes or eyestrain! In the greatest, most authoritative, and thoroughgoing system of medicine (by an English author) there is no mention of headache or of eyes! And yet 99 percent of headaches are due to ametropia.

25. *Unhygienic use of the eyes.*—The universal neglect of care of the most precious of the senses accounts for much eyestrain. Poor illumination, malposition of the head and body while reading and writing, soiled glasses, lashes striking the lenses, exposure of eyes to sunlight, the hurt from the almost universal bad methods of illumination (multiple exposed lights)—these, and other abuses are noteworthy. There is a strange disregard of the fact that the eyes should not be overused. One would not and could not pump water continuously for an hour with one hand and one arm, but surprise is shown when it is found that the eyes may not be put to severe labor for a

dozen hours a day. And incorrect spectacles doubling instead of relieving eyestrain vastly increase the unhygienic abuses.

26. *Eyestrain symptoms are of two kinds*, those in which the eyes themselves are the chief sufferers and those in which the nervous and general systems are principally affected. When the eyes bear the brunt of the morbid reflexes, the rest of the body is not hurt, and when the systemic reflexes are great the visual acuteness is preserved and the eyes do not suffer. This is the excuse for the universal and inveterate lay superstition "My eyes do not hurt, and I have perfectly clear sight, therefore I do not need glasses." But the same superstition among medical men, quite as firmly ineradicable, is beyond all pardon.

27. *Cataract and other ocular diseases caused by eyestrain*.—Ordinary or senile cataract does not arise when prior to and during presbyopia eyestrain has been prevented by correcting lenses. The failure to discover this is due to noncorrection or to malcorrection of the ametropia, and to the mania for needless surgery. The same is true in varying degrees of glaucoma, iritis, lid diseases, dacryocystitis, etc.

28. *Spectacles to sharpen vision* is one of the greatest of ophthalmic follies. It is the chief source of malignant myopia, and has led millions to their undoing. In the majority of cases my glasses give my patients for a time poorer distance vision than they had before. The oculist who gives the sharpest vision ruins more eyes and nervous systems than even he would care to realize. His

prescriptions omit the one thing needed for the clearest and best vision, the accurate correction of astigmatism.

29. *Some of the blunders of oculists.*—Prescribing “same in left” without testing the left eye. One man told a twin sister that because she was a twin she could without examination use her sister’s lenses. Patients are not instructed how to handle and put on the spectacles, what to do with them at night, how to use bifocals, etc. Every trade and calling, a difference in conditions, the peculiar habits of the patient—each require different prescriptions, different kind of frames, of adjustment, etc. I have been amused to learn how often oculists order lenses purely by guess, hit-or-miss, hoping they may come out right somehow, without measuring the eyeball with the requisite accuracy, without locating the axes, of astigmatism, etc.; their preference for untrustworthy objective methods instead of the far more accurate subjective ones, insures botchwork. One cannot refract by machinery; intelligence and conscientiousness are needed. Frequent retesting is demanded by the usually ignored fact that the error of refraction changes sooner or later in all cases. No patient may safely wear the same lenses for over two years. Amblyopiatrics is a great but little understood and less practised art. “Amblyopia” is very frequently the name given to the incorrect diagnosis of ametropia, to unsuspected systemic disease, etc. The blinder-treatment for eyes half-excluded from function by eyestrain is rarely carried out. Overuse of tobacco, sugar, etc., cannot be cured by glasses. The order for

glasses when the ametropia clusters close about emmetropia, but which in one eye is oddly variant, begets contradictory and hurtful prescriptions. Haste in making the tests, lack of infinite patience in eliciting the accurate replies—a hundred such errors are common. Refraction is an art, not a science; and as true artists are rare, it follows that if 100 different oculists were consulted by one patient, their diagnoses and prescriptions would differ from each other fundamentally and, of course, ludicrously.

30. *Faults and recklessnesses in the optician's work, for which the oculist is also responsible*, account for many failures. It is a cause of astonishment that thousands of patients are cured when one examines the inefficiency of the optician's work! In the first place most of the oculists of the world do not look after this at all, and do not even test the lenses after they have been "fitted" by the optician. If they are glanced at, the centering, adjustment to the individual face, etc., are ignored. Eyeglasses instead of spectacles usually do more harm than good, and are frequently a positive cause of eyestrain. Only two or three opticians fit the wires behind the ears to the contours; nine-tenths of the temple pieces are made thin and limp instead of the reverse; more than nine-tenths of the lenses are not inclined at the necessary and sensible angle; the bridges are rarely shaped or fitted so as not to injure the nose; toric lenses are fashionable although usually harmful; the lashes soil the glasses, irritate the eyes, and inflame the lids; and the "70 or 80 other reasons why

glasses do not cure," which I have detailed, are given no attention.

31. *Stomachal, digestional, and nutritional diseases.*—For about twenty years I have been urging that eyestrain is the chief cause of functional diseases of the stomach and intestines. Few listened, all pretended not to hear. At last two great authorities have pronounced it true. The professor of medicine in the University of Pennsylvania says:

"The subject is familiar to all! Who has not seen correction of errors of refraction relieve so-called 'bilious attacks,' periodical vomiting, anorexia, indigestion, and other gastric symptoms? The cure of grave organic ocular defects relieves similar gastric conditions."

A far weightier and more accurate statement is that by Professor Charles G. Stockton in Osler's *Modern Medicine*, Vol. V, p. 22, the Introductory Discussion on the Diseases of the Digestive Apparatus, Concerning the Nature of Functional Disturbances of Digestion:

"Commonly, indeed almost invariably, the etiology of the trouble will be found in some remote and perhaps unexpected region of the organism, to some leak of general energy, if the expression is permissible, to some undiscovered irritation of the nervous system. Thus a retroverted uterus, proctitis, or a displaced kidney may indirectly lead to the important digestive disturbances, but more frequently causes of gastric asthenia are to be found in eyestrain. This subject has been so widely discussed in America, and from so many points of view, that it is somewhat threadbare; yet its signal importance remains largely disregarded.

"Irregular or asymmetrical astigmatism is the visual defect most

often responsible for the functional disturbance, but it is not always in astigmatism of high degree that the trouble arises. It is more commonly found in instances of moderate degree of astigmatism with axes differing in the two eyes, and especially in anisometropia. Although not limited to that period of life, the nervous disturbances following these visual defects are apt to appear after the age of maturity, and are especially active when the crystalline lens begins from age to lose its pliability. We are indebted to Gould for insisting upon the reality of the matter."

It will probably be twenty years before this truth will find even mention in ophthalmologic text-books (those graveyards of buried theories), thirty before it will get into the gastrologists' text-books, forty before it reaches England and the Continent, and one hundred before it is put in practice by the fashionable general physician.

32. "*The cause and nature of migraine*," says Osler, "*is unknown*"; he should have added "to the oculist, neurologist, and fashionable physicians on the hunt for sinecures, success, trusteeships, leadership, money, and fame." But by every competent physician the cause and cure of "migraine" is perfectly understood. These also know why it is not cured, and why it is the most terrible, most frequent, most health-wrecking and life-shortening disease in the world. It is because the oculists do not prescribe the glasses which will cure it (prior to the life-crisis), because thousands of physicians do not wish it cured and prevented, and do not want to know how it can be prevented and cured. The man who did more to reveal its true cause and effective cure than any other, to my inquiry, answered, with an oath and disgust,

"Oh, migraine is any————old disease you can't cure with any kind of wrong or right glasses." There are hundreds of oculists who, to curry favor with the dispensers of power, to avoid being called "exaggerators," to get consultation cases, etc., do not cure "migraine," or if they do they never confess it, and give the credit to the ridiculous rest-cures, the drugs, and the "treatment" of the referers of patients. One reason for the non-recognition of the nature and cure of "migraine" is that no two physicians agree as to the definition of the word or what are the symptoms. It may mean anything or nothing—because, well, because "it can't be cured."

33. *Lateral spinal curvature is of ocular origin*, either through an axis of astigmatism that compels head-tilting or because of the dominance of one eye, forcing the child, in writing, to turn head and body to one side. The spinal column from habitual malposition and one-sided inelasticity, slowly develops first a functional, then an organic curve. The condition is curable in the functional stages (up to about twenty years of age), but not by the orthopedists; they know nothing of the causes or cure of the disease. After organic changes have ensued, all their misconceived methods are likewise unavailing. Oculists have paid no attention to head-tilting and therefore never locate correctly the axes of astigmatism in such cases. The children of European schools have been studied and 27 percent demonstrated scoliotic. A more accurate examination would find 50 or 75 percent thus afflicted. In our country, at least 80 percent

of college freshmen are thus outfitted for life. The profession utterly ignores the fact, because they do not know it, because they say it produces no symptoms, and because they do not know how to cure it. It is entirely preventable. Next to eyestrain, it is the world's greatest curse.

34. *In righteyedness, lefteyedness, dominance, and equidominance* there are a hundred unsolved, most important problems for the refractionist, of which the world at present knows nothing. These problems are bound up with those of right-handedness, left-handedness, "ambidexterity"; with training left-handed children to be right-handed writers; with stuttering, spinal curvature, etc. Big text-books will some time be written upon these still hidden things—hidden now from those who cannot or will not see.

35. *The compelling of the left-handed child to write with the right hand* is the cause of needless diseases in several millions of American children. The evil consequences endure for life, and in a score of ways are prolific sources of personal and social injury. The ambidexterity advocate is not wilfully malignant, but in medicine and physiology a blunder is worse than a crime.

36. *The antique, medieval, and modern fallacy as to the menopause* has been the cause of the needless suffering of millions of women. The menopause has few or no morbid effects upon the organism. It happens to take place at the onset of presbyopia, and the miseries ascribed to it are simply the result of the doubled eyestrain.

Premature senility is largely the result of inattention to this fact.

37. *The refraction changes dependent upon glycosuria* are almost entirely unrecognized and uncorrected. The already large number of glycosurics in the community is bound to increase, and the warning of oculists might be of great service to the general physician and the lay world,—if they would take and give the warning.

38. *The refraction changes dependent upon great variations in bodyweight*, being utterly ignored, bring about needless eyestrain.

39. *The Hagiology of Haig*.—Haig's theory would be accepted by none conversant with the effects of eyestrain.

40. *Ménière's disease* with its half-century of blunder, ludicrous history, and present blind alley of contradiction, ineptitude, and nihilistic therapeutics, is nothing but sick headache, always caused by eyestrain, plus its result or accident, caused by vomiting.

41. *Suicide* is often caused by eyestrain. How frequently it occurs at the onset of presbyopia! I have had many patients who attempted or planned it, but who were saved, and their sufferings stopped by spectacles. The suicide-rate in all countries is accurately in proportion to the number of study hours demanded in the public schools.

42. "*Nothing except imagination ails her!*—she wants to enjoy bad health, she's a hysteric!"—This usually means that the "science" and skill of the flippant is incapable of solving the riddle, and he has a vicious habit

of denying the reality of the disease he cannot cure. People are rarely sick from choice—and even if disease is imagined and loved the question must be asked what caused the psychic morbidity. There is no disease so prone to abnormalize the mind as eyestrain.

43. *The responsibility for morphinomania and other drug habits* rests chiefly upon the oculists, who have not taught the neurologists and general physicians that the diseases ("hysteria," "neurasthenia," "migrain," functional morbidity of mind and body, etc.), for which they give these drugs, are precisely the diseases which usually may be cured, relieved, or entirely prevented by relief of eyestrain. The drugs may change the symptoms, the nervous system may be battered or poisoned into submission, but the temporary "cure" is a curse and a medical sin.

44. *Many rarer diseases are sometimes due to eyestrain*, but the ignoring of the fact leaves these patients uncured. Such are palpebral paralysis, scotoma scintillans, facial tic, chorea, albuminuria, glycosuria, several forms of dermatitis, herpes zoster, tinnitus and other diseases of the ear, facial neuralgia, tachycardia, exophthalmic goiter, etc.

45. *The systemic disease present* is not recognized because all opticians and hundreds of oculists prescribe glasses without examination of the eye-grounds. Nephritis and other systemic diseases, besides those of the eyes themselves, are allowed to go on unknown and unchecked. This negligence is worse because thousands of general

physicians neglect urinalysis, and other signs of unsuspected general disease.

46. *The wretched instruments usually found in oculists' offices* make it impossible to do expert or exact refraction work. The old Nacet-cases of trial lenses, the miserable trial frames, etc., etc., are a ludicrous disgrace to an inventive people and in an art (not a science!) requiring such superlative skill. Any machine shop, engineer's office, or cobbler's bench so outfitted would be sold out in a month. If the plumbers, the watchmakers, pilots, railroad officials, harness makers, etc., did their work as bunglingly as the oculists, civilization would speedily end. The admirers of the ophthalmometer are in a degree justified in their adulation; unfortunately, it springs from an unpraiseworthy motive.

47. *The silly prejudice against spectacles, motivated by vanity*, is the cause of innumerable failures to cure eye-strain diseases. The vain patient and the acquiescing doctor do not know that accurate correction of ametropia is the greatest cosmetic device, because it prevents and cures the crowfooted and prematurely senile face. In some cases eye-glasses may be permitted (under conditions), but usually they are a curse to the patient and to the oculist. In this, as in many things, the commercial optician furthers the disgrace and prevents progress. At present it is of less importance because most of the glasses worn are utterly incapable of stopping eyestrain. The careless oculist, the careless optician, and the careless patient is a combination hard to overcome.

48. *The silly prejudice, lay and professional, against bifocal spectacles* is accountable for a large deal of the failure to cure the diseases due to eyestrain. In thousands of cases cure is impossible except through both distance and near correction of the ametropia, worn at the same time and continuously. There is, for instance, an hour or two of daily strain in eating meals without bifocal spectacles, if such are needed.

49. *The accommodation* is a function acquired by civilized man, variable in different individuals, almost always insufficient for the continuous near work demanded by city workers, in certain occupations, by literary people, etc. It is subnormal (inefficient) in many, and that of one eye may differ from that of its fellow. Most of us do not know or care about these facts. Subnormality of accommodation exists probably in 10 percent of the young compelled to do a great deal of near work. Bifocal glasses for them is the sole method of relieving them of eyestrain and of making them capable of carrying on their occupations. There are a hundred unsolved problems concerning the proper procedure in dealing with the postmydriatic changes of refraction. The law of the reversal of hyperopic axes in presbyopia is also not well-known and is less understood.

50. *Cycloplegia* is necessary to the diagnosis of the ametropia. There is a large class of oculists who scoff at it. Many do not know that it is only a help, one of the data in writing a prescription. It is never a dictator. Some prescribe "full," that is, the error revealed by the

cycloplegic—and fail to cure eyestrain. Some pay no attention to the post cycloplegic variant—and they as often fail. All sorts of drugs, methods of use, lengths of time applied, etc., make the confusion and the erroneous results still worse.

51. *The Significance of Astigmatism.*—Except in the offices of a dozen or more oculists the vicious influence of low degrees of astigmatism is utterly unknown. It is generally absolutely denied. It is the greatest of all the causes of eyestrain. The routine saying is, “Too little astigmatism to correct,” when it is precisely the low degrees with slightly unsymmetric axes, that is the source of more present disease and suffering in the world than any other several causes whatever combined. There is no blunder so great, no lack of skill so expensive, no neglect so criminal, as this common failure to diagnose with infinite nicety low degrees of astigmatism and their axes. All the reforms in the world are not equal to the value of this of reforming the practice of ophthalmologists as to astigmatism. The ophthalmic world with the exception of one man has never cared enough about astigmatism to ask what causes it.

52. *Anisometropia.*—Next to astigmatism, the most powerful factor in the breeding of diseases is uncorrected anisometropia. The neglect of it is therefore almost universal. It is the chief source of amblyopia, *i.e.*, partial, monocular, or initial blindness of one or both eyes, which means most vitally important things to alert oculists, but which has no significance to many.

53. *Heterophoria*.—To 50 percent of the oculists of the world heterophoria has no significance whatever, and is consequently neglected; to the other 50 percent it is treated in fifty different ways. But 99 percent do not know what causes it, or if one has a theory it is a false one. Contrary to the text-books and common practice, it is an effect, not a cause. It is the natural effect of eye-strain, and is an attempt on the part of the organismal wisdom to avoid greater evils by means of exclusion of one eye from a too difficult, hurtful, and dangerous task. Proper correction of ametropia, sufficiently early in life, prevents heterophoria, and of course also prevents its extreme result, strabismus or squint. The American debauch of surgical operation in heterophoria has been an outrage to scientific surgery, to ophthalmology, and to the patient. It was founded on the trick of prescribing glasses at the time of operating, and crediting the good results to the operation. A drooping lid is one of the signs of this strain, inability to keep both eyes in function, etc. The organic pathologist seizes on the fact to make the conditions worse.

54. *The significance of myopia*.—The disease myopia is due to uncorrected astigmatism, and uncorrected anisometropia. The entire neglect of this truth is a handicap to all European nations where the prevalence and malignity of the disease is in proportion to the intensity and length of the student-life or near work occupation. Things are only a little better in the United States, a little, and in some places only. Myopia is almost universally

overcorrected, and the all-important astigmatism present, is as commonly neglected.

55. With "*perfect visual acuity*," = 6/6, or 20/20, the fashionable and routine oculist reports "no eyestrain," and "no glasses needed,"—even if he has used a cycloplegic. Such a report is the demonstration that he is an inexperienced and blundering workman. Even with 20/15 visual acuity, under mydriasis, the worst kind of unsymmetric astigmatism and eyestrain may be present. An "emmetropic" pair of eyes does not probably exist.

56. *Ophthalmovascular choke*, an incurable disease unsuspected by oculists, does not make correct glasses needless, but all the more necessary, and yet the patient so afflicted will never have complete relief of eyestrain.

57. *Frequent rerefraction* is necessary to insure relief of eyestrain and to avoid systemic diseases. The eyes are constantly undergoing changes in shape and consequently in the refraction error. The rule has been to consider one prescription as accurate for many years or even for half a life. But retesting is necessary at least every two years, in many cases more frequently.

Under the circumstances it is, indeed, extraordinary that thousands of cases of "migrain" and other systemic diseases have been reported as cured by hundreds of physicians. One might say that one-half of the glasses-prescribers do not learn or wish to learn how to diagnose the static error of refraction—a proceeding absolutely necessary to relieve eyestrain. One-half of those who try to learn the art, do not succeed. Few of those who succeed or

fail ever learn to make the peculiar changes from the static correction absolutely necessary and ever-differing in each patient, according to age, occupation, ocular injury, habits, etc. The inexhaustible problems of the post-mydriatic changes are still unsolved, even unstated. Of the few patients who secure a proper prescription the optician will usually neutralize the possible good; and the patient, by faulty habits in wearing, etc., will make the bad job thoroughly bad.

Let us look at the affair from the standpoint of the intelligent general physician in a large eastern city, who had elsewhere demonstrated the truth of the preceding pages in the cases of many patients. I quote from a letter just received from him after he had removed his residence:

"As to the situation as regards refraction work, it is apparently as hopeless as possible. If the average refractionist could only see himself as his patient or the practitioner sees him, perhaps he would change, at least not be satisfied by his own halo of self-esteem, without *delivering the goods*."

"The unfortunate part is that the people themselves are losing confidence and not always without reason. The best example I can give of this is one young woman whom I am treating who has attacks of migraine with vomiting, etc. She first consulted me for a condition entirely foreign to her headaches. Being called upon to relieve them also, upon inquiry I decided that they were due entirely to her eyes. Then it was that I found that she

had been to three different oculists this past year—each had refracted her eyes, each giving a different prescription with the following advice: ‘Now wear these glasses; at first they will cause you trouble, but you will soon get used to them.’ Needless to add that she never got used to her continued headache and is now disheartened and disgusted.”

“Another case that I am interested in: I sent the patient two and a half months ago to an oculist to have her eyes corrected. She was a nervous wreck due a great deal if not entirely to eyestrain. She was a stenographer by occupation, and at work, if the least bit tired, would be taken with pain in her left eye followed by a general headache and occasionally nausea and vomiting. She was refracted under mydriasis, glasses prescribed with the usual formula to wear them and never mind the discomfort at first as she soon would get used to them. Such mental suggestions did not work for now she is a complete wreck, unable to work, her glasses cause so much distress that she cannot use them at all. The worst of it all is that I cannot convince the refractionist that it is ‘up to him to make good.’ So far this winter I have referred eight nervous cases with eyestrain to oculists for refraction. Of these, only in two has there been satisfactory work done. It would seem to me that the reasons for such a condition of affairs are due to

- a. Carelessness combined with some slipshodness in their work.

- b. Forgetting, or the absence of knowledge, of the

relation of the eyes to bodily symptoms in general. This relation being principally an etiological one.

c. The use or abuse of various instrumental shortcuts to a proper refraction."

AN APPEAL FOR THE SAKE OF MEN
AND OF MEDICINE.

CHAPTER XXI.

AN APPEAL FOR THE SAKE OF MAN AND OF MEDICINE.

I beg, first, that you who read, will, with unprejudiced and open mind, read to the end what is here written. It is my earnest conviction that there is not a man, woman, or child who is not personally and profoundly concerned in the matter, either directly as regards himself, or secondarily in the persons of relatives, friends, etc. The duty at least to listen is far more incumbent upon you if you have power or influence with others as an educator, physician, legislator, administrator, employer of men, or capitalist. If you have any feelings of religion, morality, or sympathy for your fellows, it behooves you to investigate and see. I am not writing at the behest of vanity or self-interest. Every consideration born of selfishness would counsel silence. "*Ich kann nicht anders.*"

I beg also that abstractors, epitomizers, and editors will not misrepresent me, and that you who read will try to bring to the attention of others this paper itself rather than another's report of it. Conclude and judge, I beseech, for yourself, without bias or influence of others, and especially if these others whom you are inclined

¹*American Medicine*, New Series, Vol. IV, No. 3, page 119-128, March, 1909.

to trust are professors, text-book makers, doctors of laws, "authorities," "leaders," or officials of medical societies, etc. These, in no time or place, have ever welcomed new truth, have indeed scorned and opposed and derided both the truth and the truth-bringer.¹ They are most expert in implications or charges that the crusader is an exaggerator, an egotist, a self-advertiser, or much of a fool. The entire history of discovery, science, and civilization, is a pitiful repetition of this wilful and criminal blundering of so-called "leaders." The charge narrows itself to their culpable interest only in the effects of disease, in the terminal diseases, born of unscientific and wilful ignoring of the functional origins of most all diseases, and of recklessness as to the prevention of vast sources of both functional and organic diseases. An appeal to these false leaders and authorities is absurdly useless. All progress is made against their will by the few, usually by those outside the class. A great and true scientist, Tyndall, speaking of so-called scientists, says:

"We often complain of the scorn of theories by practical men, and to convince them we triumphantly point to the immense services of our heroes. The practical men, however, will not be convinced; and why? Simply because of ten well-known theories nine deserve nothing better than contempt. Our intellectual heroes build their theories upon enduring facts; the mass of facts

¹See "*The Reception of Medical Discoveries*," *Annals of Ophthalmology*, October, 1904 (before it fell into "organization" hands), or *Biographic Clinics*, Vol. III.

which they use in order to guess the law is a measure of individual ability, not the touchstone of the correctness of their system."

Huxley said that "The improver of natural knowledge absolutely refuses to acknowledge authority as such. Every great advance in natural knowledge has involved the absolute rejection of authority." In publishing his discoveries concerning thoracic percussion, Auenbrugger wrote: "I realize that envy and blame and even hatred and calumny have never failed to come to men who have illuminated art or science by their discoveries or have added to their perfection." Indeed, one may be cunning enough to know the truth, but too cowardly to acknowledge it in detail. "It is a horrible thought, but very true," writes a great leader and authority, "that we reach a stage of life, some earlier, some later, in which a new truth, a perfectly obvious truth, cannot be accepted." That sentence should be printed in every number of every medical and scientific journal.

DETAILS! *First*.—There are probably over five million Americans who during infancy chose the left hand as that to use for the most expert and intellectual tasks. The majority of these were compelled by blind prejudice and custom to become right-handed writers. The result in such a case is often tragedy of the life, and always at least morbidity, abnormalism, and handicap. Visual function, right-eyedness, is the cause of right-handedness, and left-eyedness is the cause of left-handedness. The cerebral location of the speech-center, always combined

with the writing center, upon one side or upon the opposite, of the brain, is likewise a result of ocular function. Every act of life, especially every intellectual act, safety in action, choosing, willing, is loosely or closely bound up with conjoined innervation of the muscles of the coordinate side of the body. Surgeons should daily remember this fact, but they universally ignore it. Refractionists have need to bear it in mind more carefully, but they are proud to think themselves surgeons. Mothers and school teachers go to the extreme and brutally train the child to disuse the left hand for writing and to transplant the intellectual centers for speech, writing, etc., from their natural location with the left-handed in the right side of the brain, over the left side. The results are malfunction, accidents, dangers, and suffering of many kinds—all not only wholly avoidable, but needlessly created.

Secondly.—At so early an age as 14, it has been found that at least 27 percent of European school children have lateral curvature of the spine. In our country the proportion cannot be less, so that, as I have for several years been crying out, some twenty millions of our people have this disease. I have been in error in this matter, however, and have now come upon facts which make it certain that not a minority, but the great majority of our young educated people from 16 to 20 years of age have the disease. And if they once have it they always have it. I have learned that in one large university it was years ago found that a majority of the members of the freshman

class had noteworthy lateral spinal curvature. The fact was so horrible that no report was ever published, and the duty of arousing the nation and the world to the extent of the hideous and awful evil was ignored and refused.¹—Why?

If it is said that the proportion of cases of spinal curvature in *all* of our children, young men and young women, is less than that in high-school, college, and university classes, one can only add the fervent prayer that it may be so. The doubt of it still clings. A disease that afflicts some 80 out of 100 of our educated classes, is a bitter commentary on education and upon the official guardians of the public health.

And such a disease! A variation from an upright support, a curve, or kink, at the base of the single column which supports the human body! What architect would be reckless of such a fact in the steel beams of his bridges or sky-scrappers? And only one or two orthopedic surgeons in the United States and Canada accept even partially the truth. The rest of the several hundred thousand physicians and surgeons do not know the cause of the disease, cannot cure it, and make light of it when they are prodded. They do not look for it, could not even see it, unless it were pointed out to them, that is when it exists in its functional stages, those only in

¹This reminds that Vol. I of the Royal Report concerning the sudden drop in the birth-rate in Australia, etc., is the only one allowed to be published. The second volume giving the actual facts, figures, and mechanisms of this race-suicide were so hideous that the Government did not dare publish them.

which it is curable. Thus they go on treating its symptoms and effects with drugs, operations, morphin, institutional life, "rest-cures," etc. How often I have witnessed the grief, the shame, the tragedy of noble physicians, when I, an oculist, have revealed to them the fact unsuspected before, that their own children were hopelessly deformed and crippled by a lateral curvature become organic under their very eyes.

The leaders say the numbers are grossly exaggerated: I say there are 50 millions of American citizens, probably more, who have lateral spinal curvature. They say the cause is unknown; I say the cause is known; or knowable if one wishes to know it. They say it will get well itself and untreated; it never does. They say slight curves are not harmful; but the slight are often the worst. They say it produces no symptoms; I say it is producing a hundred symptoms; is an enormously powerful agent in weakening and abnormalizing; in producing incalculable suffering; in fallowing the ground for the infectious and terminal diseases; it is crowding thousands into asylums—it is, in brief, wrecking millions of lives. They say it cannot be prevented; I say it can be prevented, absolutely, in 99 cases out of 100. The dress-makers and tailors know infinitely more about the fact of the existence of spinal curvature than the professors and makers of medical text-books—and they are fully as expert in concealing the deformity! A great man has written a great book upon clothes and scarcely made allusion to the most significant fact concerning them,

their function, namely, of concealing physical deformity. Even shoemakers and cobblers by genuinely scientific observation of worn-out shoes have often guessed the truth. And osteopathy is one of the ironies of medical sociology—the foolish teaching the wise a wisdom of which neither knows aught. The truth which the pitiful osteopath is blindly seeking, is that of lateral spinal curvature. But the pity is drowned in ridicule that he should suppose the vertebræ are “dislocated.” But the ridicule is overwhelmed by the fact that his fumbling and punching about the backbone is really an ignoramus’s *deep massage*, practically unknown of medicine, and does no permanent good whatever.

It is of course useless to warn the deaf that they should hear the danger signals called osteopathy, etc. The profession has created the osteopath—and, while ashamed of its handiwork, it denies all responsibility for him. It therefore proceeds to curse him, its Frankenstein, while he leers at his ashamed creator. The obvious foolishness of the osteopath’s theories are properly scorned, but the number of his proselytes as obviously grows. His sad excursus into error does not lessen the sadness of the professional nonexcursus into the truth which the osteopath is blindly seeking. There is indeed a new development of osteopathy already in full swing which says, “malalignment,” instead of “dislocation” of the vertebræ. With gross ineptitude it naturally locates the seat of the reflex troubles of scoliosis in the cervical instead of the lumbar region. Egged on by the ophthal-

mic surgeon's old blunder, it traces tilted head to heterophoria, whereas heterophoria is a device of nature to lessen, not create, both eyestrain and backstrain. Osteopathy is making great haste to travesty most of the ignored truth of lateral curvature of the spine, seemingly to justify the professional sneerers who first ignored the whole of it. So that, between travesty and ignoring, poor Truth still awaits proper appreciation and acceptance. All the time the sick multiply, and—die. "Where the mind of genius," said Tyndall, "discerns the distant truth, which it pursues, the mind not so gifted often discovers nothing but the extravagance which it avoids." But osteopathy is better far than the -pathy of one famous and very "regular" orthopedic surgeon who cuts off shoulder-blades because of astigmatism! Even "ophthalmic surgeons" say they are able to cure pains of the shoulders by glasses!

And the same, *mutatis mutandis*, may be said of Eddyism, faith-cure, rest-cure, and a hundred delusions, medical and pseudomedical.

An hour's interest and study of passersby in the street would show a keen observer that a large percentage of ordinary folk are humpbacked, head-tilting, lopsided, pigeon-toed, unequal-stepping, deformed, etc.—defects caused by spinal curvature. Artists have not discovered scoliosis because they have intuitively refused the scoliotic model, choosing straight-backed foreigners who never went to school. Not two school teachers dream that they are permitting and witnessing, even creating the

score of millions of scoliotics of the adolescent generation, crushed as 90 percent of these pupils are to the left, with wry necks, humping backs, twisted heads, etc. Perhaps they read of the devilish Viennese and Chinese factories of ghastly cripples to make of them more successful beggars—with horror—and also with pride that civilization and education have ended all that!

THE CAUSE?—*Visual Function!*—In a minority of cases it is due to certain axes of astigmatism which compel a *constant* tilting of the head to one side in order to see plainly. Any constant abnormal head posture, such as head-tilting, head-twisting, etc., will produce, first, functional, and, later, organic lateral spinal curvature. “Scientific” orthopedics has established the truth that any habitual lateral bending of the spinal column produces rotation of the vertebræ and hence “malalignment” of the vertebral column. But to experiment with cadavers, it cut off the cervical portion of the spinal column and also ignored the neck and head of the living model. The cervical vertebræ form part of the column; ignored by the scientists, the osteopath is founding a philosophy upon the ignored part! In a majority of cases lateral spinal curvature is caused by the habitually morbid writing posture—produced by right-handedness and right-eyedness (in the right-handed, by left-handedness in the left-handed), whereby the head and body are wrenched to one side and in several ways distorted. The all-important seeing what is being written is impossible without this back-wrenching, life-wrecking deformatory process—

impossible if the child follows the advice of school teachers and writing masters. In madly and exclusively seeking after the infinitesimally little the pathologists have utterly missed the grossest and most common of all gross lesions of the body—the kinked, curved, vertebral column.

THE PREVENTION?—Give to the little patient with astigmatically-caused head-tilting spectacles correcting his ametropia, and his head will be erect and his back will not become curved. Place the writing-paper twelve or fourteen inches from the eye, opposite the right arm and shoulder of the squarely-placed and erect-bodied pupil, and on a desk slanted at an angle of 30 or more degrees, and there will be no need and no practice of functionally-curved and writhing backs and heads in order to see the pen-point and what it is doing.

The Cure of Lateral Spinal Curvature.—The disease is still functional or largely so up to about the age of 20 years. The diagnosis of the functionality of the disease is demonstrated by making the patient stoop forward with unbended knees, as if to pick up something on the floor, if the morbid lateral curves disappear and the line of the vertebral spines (dotted with ink) becomes straight. When lateral kinking or curving does not entirely disappear, then function has by that much become organic, and the probability of complete cure is to that degree lessened. When there is no straightening of the line by this bending forward the disease is entirely organic, and the ingenuity of man plus all the torture-chambers and outrageous machines pictured

by a Hoffa will never bring about cure. The only attempts to cure in any stage, by "scientific orthopedics," is by means of machinery, crushing, compressions, mechanical devices, jackets, bandages, and the like—which never cured and never can cure any patient. All fashionable and text-book orthopedics concerns itself with the distortions of the dorsal region, which are secondary, compensatory, relatively unimportant, and comparatively incurable. The significant facts about lateral curvature are its location in the lumbar region, its functionality, and its curability or incurability. The sole successful methods of cure are, and self-evidently must be, by means of neutralizing and normalizing physical exercises, gymnastics, postures, and trainings, individually adapted and varied with each patient and to the peculiarity of the case, and to every stage of the disease. For years I have despaired of securing such treatment by all but one orthopedist, and although not my business, out of mere pity I have had to invent and search out means and methods to give some relief to the hundreds of patients accident threw in my way. This is the written set of rules given my last patient with a left one-half inch midlumbar kink:

1. *In Standing:*

Habitually support the body-weight on the left foot.

2. *In Sitting:*

a. Throw the left leg over the right.

b. A one-inch or two-inch pad under the left ischium.

c. Exercises in leaning to three positions to the left.

3. *In Lying and Sleeping:*

1. Preferably on the right side and shoulder.
2. On the right breast.
3. On the right shoulder blade.

4. *Gymnastics:*

Always with deep and held inspirations, never violently or rapidly.

1. Bending the body with rigidity of the pelvis, forward and to the left diagonally; directly to the left; diagonally backward and to the left.
2. Again with stationary pelvis, bending the body backward and then rotating or sweeping it, while bent, around to the left to a bent-forward position, and *vice versa*.

All of these, and variants of these, and other methods not mentioned, chosen after experiments and tests upon the patients, neutralize and cure the functional curve, and may improve the partially organic one.

Thousands of specialists with ingenuity, enthusiasm, and love, could find remunerative callings in treating by such and similar methods, ever-varied and adapted to the special case, millions of patients now untreated. There is not one such specialist in the world.

The single good thing that one may say as to crooked backs is that the lateral curves, with the resultant kyphoses, lordoses, and a dozen other sequent deformities of shoulder, chest, etc., become at the age of 40 or 50 entirely organic

and fixed, and symptoms disappear. The old hump-backed cripple is at last released and half happy. But before this happiness of life comes, he usually finds the rest and peace of death through the terminal diseases, which scoliosis had long prepared for, invited, and welcomed. Before the end-disease arrives, death's seal is stamped in the face of every chronic sufferer. In the dictionaries you will find listed the types of facial imprints of many diseases, the cardiac facies, the Hippocratic, the hepatic, the ovarian, the typhoid, etc. But, of course, the most differentiated, most distinct, most common of all you will not find listed—the scoliotic face: it is the unity and result and attestation of long years of resistance to mysterious affliction, of combat with an unknown and ever-present enemy; it is a composite photograph of pessimism, irony, endurance, pain, and grief—the face of a winded antagonist enjoying a brief truce with h's conqueror before the final dance of death begins.

Eyestrain.—Some 95 percent of people are right-handed or retain their good left-handedness and thus escape the gruesome ignorance and cruelty of the ambidexterity barbarians. Perhaps 20 or 30 percent escape the ignoring, unobservant, unscientific scientists, teachers, physical culturists, and come to young manhood and womanhood with nearly or wholly erect and elastic spinal columns. But none, not one escapes the maleficent influence of eyestrain. If not properly "glassed," soon or late, little or much, subtle or glaringly tragical, the hurt

of ametropia and accommodational inefficiency is doomed to come to every one sharing the thing we call civilization. There is not probably an emmetropic pair of eyes in the world. And if there were one such pair, the "accommodation" of the eye is unprepared for and incapable of the tasks of early and middle life. Even in the young this is true, more or less, but at 40, 50, and 60 it is unexceptionally and absolutely true. Despite all the dogmatic contentions of the backward-leading leaders, the chief inflammatory and surgical diseases of the eye (after babyhood), such as cataract, heterophoria, amblyopia, iritis, etc., are also the consequence of ametropia, or eyestrain. Ten thousand trained, keen-minded, nimble-fingered refractionists are needed by the American people. The national life and validity, the birth-rate, death-rate, the life-value, hangs largely on this factor of ocular efficiency. A dozen or more oculists know it, practise it, preach it, but thousands deny it and ignore it. Every day a million or several million of patients whose diseases were caused or are caused by eyestrain are being treated with drugs, placebos, morphin, cocain, "rest-cures," etc.; in a thousand sanitariums where *Sanitas* is unknown; with surgical operations; or they are herded, hopeless, in "asylums," "homes," and "hospitals."

Vision, accurate and physiologic vision, is the *sine qua non*, the precedent and continuing condition, of animal and human motion, of vertebrate evolution, of the progress of civilization. This accurate vision is dependent upon the perfection of the shape of the optical instruments

called the eyeballs. Such perfect optical instruments do not exist in man, and in direct proportion to their imperfections, crippling perfect function, there is sequent disease and lessened efficiency of the person and of his life. In an amazingly large number this inefficiency is present, and in all it occurs in life sometime and more or less.

Ametropia is the technical name for such imperfection of the eyeballs, and eyestrain is the name given to the resultant morbid functions. In addition to this the eyes, before civilization, were evolved for a definite and necessary function—distant vision. In a few generations or centuries civilization has suddenly come demanding near-vision at one or two feet, and for this continuous “near-work” upon tiny things, printing, sewing, etc., there is no mechanism. The accommodation is unequal to the demand, and at 45 it begins to fail altogether. The result is the need of the most useful invention of civilization, optical lenses; but, despite all ophthalmologists and opticians, the invention is most ludicrously applied, the diagnosis of ametropia most outrageously misdone. Of the few patients that are treated by the ophthalmic surgeons and opticians, but few of the glasses ordered relieve the eyestrain or stop the hundred diseases caused by it. If a patient should go to a hundred “leading” city ophthalmologists and opticians, detail the same symptoms, etc., each of the prescriptions would be unlike the others and but one or two probably (possibly not any) would be capable

of curing the eyestrain. And misfitting spectacles on the part of the optician and disobeyed orders on the part of the patient would likely turn these into failures. Moreover, the city authorities do not see a hundredth of the city patients, and half or three-fourths of the American people cannot possibly consult any but the ignoramuses, the peripatetic or resident charlatans with or without degrees, who are no more fitted for their calling than they are for watchmaking or captaining an ocean liner. There are hundreds of 100-square-mile patches in our country where it is utterly impossible for a sufferer to secure correction of his eyestrain. Ten thousand capable refractionists are needed and would immediately find places to do good and remunerative work, work that is of a beneficence that might fitly be called divine. And all the time medical colleges are multiplying, their courses are inordinately lengthened, theoretic and impracticable knowledge is demanded, and the whole profession is woefully clamoring that the profession is overcrowded!

How it works out in the politics of democracy is admirably illustrated by the blunder of well-intentioned Governor Hughes in sanctioning the "Optometrists." The professional "leaders," particularly of New York City, had already apotheosized the machine called the ophthalmometer, and finished the neologic quackery by preaching that no mydriatic is necessary for diagnosing errors of refraction. This was followed by the denial that eyestrain has any resultant systemic evils, that functional diseases have any causes or effects, or that they are

curable anyway. Taking them at their word, what could Governor Hughes do but carry out their condemnable pathology and legitimize optometry? Thus, in place of the physician, is put the ignorant optician as the therapist in charge of the vast body of human diseases and ills. The result is every department store and spectacle-peddler advertising, "no poison-drops" and, practically, their assumption of the licensed role of healers in ophthalmology. The farce is ended (or just begun?) with the legitimizing of the osteopath, while the writing-master and school master and parents are recommended to continue the making of the millions of migrainic, scoliotic, and "ambidextral" life-wrecks.

THE SYMPTOMS?—The vast majority of all functional diseases are now of confessedly mysterious origin! Take all the functional disorders and afflictions of unknown nature, of unknown origin, for which the world of medical men are grasping avidly and aimlessly at unknown (and unknowable) remedies, and the great majority will be found, directly or secondarily, due to the three morbid agencies mentioned. Add to these the abuses called "The Seven Deadly Sins of Civilization," and the list is nearly complete. Add to these the influence of those functional sources of evil which prepare the soil for the infectious, organic, surgical, and lethal or terminal diseases, and the list is almost filled. All statistical tables and reports of the "Causes of Death" concern themselves with the diseases immediately preceding death. All the fashionable and "successful" con-

sultants are called in when the disease has done its worst and death is inevitable. But he who loves his fellow-men, he who wishes to prevent the evil of premature and unnecessary death, he who hunts prevention of disease as earnestly as the medical politician hunts fame, offices, honors, and success—he will seek to know the functional and habit precedents and origins of the terminal or death-dealing diseases. The search for the beginnings of death must not be postponed to the postmortem table. The beginnings were way back in the years of morbid function. American quackery, Eddyism, osteopathy, faith-cure, optometry, and a hundred such nonsensicalities, if ludicrous, are still evidences that a large part of the community is at least undeceived. Its renunciation of one folly for others is a stinging proof that the first one should not have been permitted. Unfortunately, the warning is only laughed at, not heeded by the professional leaders. Alas, that the profession is still led!

The Emmanuel movement, Thaumaturgic healing, is an attempt to make Eddyism and suggestion-therapeutics respectable—respectable socially, intellectually, and medically. But, however ludicrous, the attempt tells exactly the same sorry story I have emphasized. The “Movement,” frightened into birth, asks and receives the sanction of the Priest of Medicine, while the atheist cynic emphasizes the fault of the physician in not having long since preempted the whole field of suggestive therapeutics. Just as the host of sanitariums of private and public hospitals, “homes” (individual, semi-private,

or public), and numberless eleemosynary institutions, are filled with unrecognized eyestrain and backstrain patients, so the Eddyistic, faithcuristic, and Emmanuelistic clinics are fed from the same sources. Emmanuelism relies upon medical propping and aid, and, like its copartner, as little dreams that no permanent cure is possible by emotional and suggestive sleight-of-hand tricks. It costs life-force and health to hold a kinked spine in service, and astigmatism cannot be permanently cured by the prestidigitator's mental make-believe. Neither the man of piety nor the man of pills will look at canted and strained bodies or look through accurately-seeing eyes. How, then, can they cure the numberless patients when they ignore the etiology of functional diseases, and treat their effects by the legerdemain of suggestion? And so another is added to the silly experiments we as a people are fond of making in our juggling with medical truth.

The vast majority of all functional nervous and physical diseases are directly or secondarily due to backstrain and eyestrain, either singly or, more usually, combined. The combination is certainly causally present in the epilepsy of a hundred varieties and degrees, in the foolishly-named neurasthenias, hysterias, "nervous breakdowns," the invalided, the failed, etc. The haunting curse and shame of the age is epilepsy. Backstrain and eyestrain are its causes. Thousands are affected with swooning or fainting attacks, all from the same causes. Ménière's disease is little or nothing more than sick

headache, caused by eyestrain, and prevented by correction of ametropia! The large majority of pelvic diseases, both of men and women, are due to spinal curvature—the floating kidneys, gastroptoses, appendicitis, ovarian and uterine diseases, etc., because the malpositions of the body strain or weaken the ligaments of the viscera, crowding certain organs and making morbid their functions by pressures, relaxations, etc. When the neurologists and medical philosophers do not know the cause, or the nature, or the cure of a morbid condition, they are prone to call it “neurasthenia,” “diathesis,” etc. Neurasthenia is the popular disease nowadays. It has been made fashionable because neither its cause nor its cure is known. The most of it is due to spinal curvature. One great general physician is on record as saying that the relief of eyestrain cures a host of the disorders of indigestion—a truth I have been preaching for nearly a score of years. The greater part of the lay world knows that the headaches of all kinds, sick headaches, migraine, hemicrania, megrim, “rush of blood to the head,” etc., are almost always due to eyestrain. A thousand “ophthalmologists” pretend not to know it. They secure the reference cases from the great consultants. It would, a hundred times over, pay every college or university to secure an expert refractionist and a straightener of spinal columns, in order that students might vastly increase their working power and prevent waste of health and life, even wreckage of both. The medical supervision of the public schools, if properly

done, would consist, nine-tenths of it, in attention to the curved backs and ametropic eyes of the pupils. Personal investigation has shown that fully 60 percent of the school children of Philadelphia and other cities have eyestrain or defective vision. Where is one-tenth of attention given to it? Millions of dollars can be easily secured for institutionalizing the failed and invalided life-wrecks, but not a dollar to prevent them by means of slanted desk-leaves opposite the right shoulder, and by spectacles, the lack of which Governor Guild, of Massachusetts, officially asserts causes most of the ill-health of school children. Suicide of children and adults in every nation and community is exactly in proportion to the number of study-hours demanded in the schools. The death-rate may easily be halved, the sick-rate quartered, the suffering of the world reduced to one-tenth by a realization that these reforms are feasible; it is possible to bring about a speedy ending of the hideous evils that are following from inattention to the facts.

What hinders? Ignorance, dogmatism, falsely called conservatism.

What is needed? Money wisely devoted to the chief ends in view: *First*, to the wide dissemination of the knowledge that these matters are truthfully as I have stated; *secondly*, to the training of men with minds and souls capable of righting the evils.

In addition I ask for an intelligent, large-minded interest on the part of all men.

Nothing, however, is to be hoped from the great or

little medical colleges, undergraduate or postgraduate. They are in the hands of the prejudiced, the professors, the organic pathologists, the "leaders" who never lead. They must work out blindly their personal ambitions, by treading carefully in the ruts of custom and habit, and indoctrinating their pupils so they may walk in the same safe and narrow way of precedent. They are the true teachers of "Heredity," "Diathesis," "Neurasthenia"—those "Unknown Gods" whom they naturally worship—whom the new medicine and the new science of Morbid Function "shall declare unto you."

There are a dozen or two oculists who know these things to be true or in great part true. There are a few hundred silent general physicians who are as well aware of the facts. There are thousands who are more or less convinced but who dare not openly preach and practise the unpopular truth. The great mass of sincere-minded, unknown, noble country physicians, with a few of the more honest of the general practitioners of the city are ready to practise it. These have seen thousands of their patients cured of many terrible diseases which the official "science" and its text-books, declare to be of unknown origin, of unknown nature, and of unknown curing.

The truth must be made widely known by means of proper literature scattered among the people. Since official orthopedics will have nothing to do with the cause, diagnosis, prevention, or cure, let the 50 or 60 millions of Americans afflicted with lateral spinal curvature and

its secondarily caused distortions, diseases, and sufferings read and learn for themselves. Let them found schools to teach and fit men to deal with the intolerable mischief! Nine-tenths of all spectacles worn by our people, more accurately ninety-nine one-hundredths, are incapable of curing eyestrain, and millions go without the spectacles needed to prevent the enormous resultant suffering. Special refraction schools, not in the hands of the old recreants and immobiles, are necessary to end one of the worst shames and tragedies of civilization.

Who will supply the zeal, who the money?

I and many physicians, thousands of patients cured, and a world of patients still uncured appeal to you personally for an answer.

THE ROLE OF VISUAL FUNCTION IN
ANIMAL AND HUMAN EVOLUTION.

CHAPTER XXII.

THE ROLE OF VISUAL FUNCTION IN ANIMAL AND HUMAN EVOLUTION.*

When scientific interest first appeared it concerned those things farthest removed from the observer and of the least vital importance to him. During thousands of years the intellect gradually approached the consideration of the human being himself. Astronomy was the first of the sciences; then man discovered his own world. The beginning of biology came nearer home than geology, and through numerous approaches and standstills man finally reached his own body. The bones of that body were his first care, then physiology was found; psychology is now emerging. It is natural that the law which expresses the order of the diverse kinds of discoveries should hold when applied to the stages of progress in each individual type. It follows that in zoology and physiology, the nearest and most important conditions which have brought about the exclusion of the unfit have been deferred for final findings and scrutiny, and we are now entering upon this last stage of accounting.

Hitherto the interaction of organism and environment has largely summarized the philosophy of biologic development, followed at once by the admission that the

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environment is the predominant factor, and that the individual organism has but little influence upon the outside circumstance. The truth seems rather to be that, when rightly estimated, the human organism, as a whole, has largely made its own environment, and that civilization is progressively taking almost entire charge of it.

With this recreation of the environment by humanity will come the recognition of the hitherto-unseen truth that the most intimate and influential part of the environment is man's own body. Following this it will also be admitted that the individual variants of organs, such as imperfect senses, traumatisms, diseases, etc., not to be accounted for by heredity, are powerful factors in making misfits and unfits of such organisms and thus excluding them from the phylum.

Whether the controversy concerning the inheritance of acquired characteristics shall be settled in one or another way, the speediest and surest method will be by the study of the action of the inheritance of disease. And especially as to those diseases which depend upon ametropia. Here is an astonishing mass of evidence collated and placed in the hand. If it were used, the controversy would soon be illuminated. The people, rightly or wrongly, also believe that they "inherited" their headaches, sick headaches, and morbid nervous diseases. A very little careful testing would prove or disprove both the scientific and the popular faiths. Thus, again, as always, what is good science is good

benevolence. Pathology would soon settle more scientific and social problems than normal physiology or morphology.

This gives warrant for criticism of that too common prejudice which excludes pathology from scientific consideration. It would rather seem that all other factors combined hardly equal in efficacy that of disease in excluding the unfit from genetic function. The morbidity and mortality rates, even among animals, and certainly in human life, markedly govern the evolution and characteristics of the phylogeny.

If so much is admitted, then the function of vision has been a strangely overlooked factor in the development of fit and unfit, and in shaping animalian and human trends and products. This is because vision is the most directional component, the *sine qua non*, indeed, of that part of the environment called the body: it intermediates between that body and the more external world; between man's hands and himself; between his mentality and his corporeality. The reason for the preponderant role of the eye in the development of unfitness lies in the difficulties encountered in its creation and present perfecting. It has been the severest task of the biologic process, and its imperfections are still a vast and growing source of the imperfections, characteristics, and failures of that process itself.

These difficulties may be roughly classified as those which relate to:

1. The embryology and optics of the eyeball.

2. The role of vision in the development of self-motility of the body.

3. The progress from divergence to parallelism of the optic axes, or from laterality to forward-looking.

4. The adaptations consequent upon the assumption of the vertical posture of the body.

5. The development of the shading mechanisms of the retina.

6. The struggle against astigmatism and other forms of ametropia, accommodational failure, cataract, ocular and systemic disease.

1. In view of the fact that the ether is the chief medium connecting organism and environment, the knowledge and utilization of the external world was possible only through the development of visual function. The fundamental difficulty in the construction of the eye was to devise a mechanism which should react instantaneously, accurately, and for a lifetime, to a stimulus hundreds of millions of millions slighter in kinetic energy than that, for instance, of sound waves. There is a keen suggestion of this difficulty shown by embryology. Within a few weeks after fertilization, the ovum, nearly synchronous with the differentiation of muscular tissue, shows the eyes in beginning formation. That it is so early, and that eye and muscle develop at the same time, is strikingly significant, for neither alone, certainly not the muscular system alone, would be either possible or of use. *Ubi motus ibi visus!* If "the ontogeny repeats the phylogeny," then the long stage of coincident embryonic evolu-

tion of the visual and muscular organs demonstrates an amazingly long period during which the difficulties and imperfections of either or of both were overcome. Those individuals and types in which these imperfections were the greatest must have been those excluded from the phylum because of unfitness. The undoubtedly greater difficulty of device in making the eyes renders it clear what delayed the perfecting of bodily mechanism, and why the unfit were preeminently those that were visually unfit.

A still more significant fact is that the brain comes out to see: cerebral substance is pushed outward to make the essential ocular structure—the retina. In no other instance is this embryonic process the same; and the reason seems clear that in no other is such a procedure necessary: the mechanism could not be devised, as in the other organs and senses, with the crude and refractory materials at the disposal of the organismal artificer. It was only with its own highly differentiated and complex cerebral substance that the complex and differentiated retina could be constructed and kept in life and repair—as the food of the babe is part of the mother's own tissues. The number of medullated nerve fibers of the human optic nerve is about 438,000, the number of retinal cone-cells at birth between 3,000,000 and 4,000,000. Noteworthy is the fact that the creation of the eye at birth is incomplete; the number of cones in the adult is double that of the babe. The number of retinal rods has been estimated as high as 130,000,000. Upon these hundred

million rods and cones, as if upon so many bunched finger-tips of a blind man, is laid the warm picture, made by light, of the external scene, and the blind man sees, his crowded and extended fingers making, as it were, an eye.

The sensitive film of this living camera had to become a perfect mechanism of color-photography; had to be resensitized in an instant for a million pictures a day! All the adventitious peripheral structures—cornea, aqueous, crystalline lens, and vitreous—had also to be made and kept transparent without the usual red blood-corpuscles always necessary elsewhere. Such are a few of the difficulties encountered and overcome. Failure in any part inevitably threw out the individual, good in every other way, as unfitted to survive. If at the present time millions are thus excluded, what must have been the havoc in the animalian and savage past?

2. Adaptation to the environment and utilization of it by the organism was and remains impossible without the intermediate of self-motility. But this was likewise impossible without the prerequisite of vision to make the outside world known. Hence the synchronous and coincident development of the ocular and muscular systems. The accurate spacial and topographic representation of the objective world by the visual mechanism, and intimate, instant, and dominating guidance of all motor centers by the ocular picture, thus become primal necessities. There is scarcely an organ, surely no striated muscle, that is not directly or indirectly the servant of the

eye. From animalian fight, shelter-seeking, and food-hunting, to Civilization's latest cunning and devising there is an ever-increasing interplay of seeing and doing, until now vision seems to have vastly outrun execution. With every cerebral motor center awaiting, instigated by and obeying the guiding vision, how numberless the failures due to a hundred diseases and faults of mechanism! The present world of the sick, hurt, and prematurely dying are innumerable illustrations of the excluded unfit.

3. The optical axes, in the lower orders of the Mammalia, began with almost absolute divergence and proceeded toward parallelism through the progressing orders, until with the Simiæ and Man there is perfect parallelism.* The large range of the axes in the Marsupialia (from 75° to 30°) is suggestive, especially when that of the Carnivora is found to begin the overlapping at about 50° and reach to within 5° of the perfect parallelism of Simiæ and Man. The approach to parallelism may be looked upon as a kind of Ariadne clue through the maze of phylogenetic ascent. If we translate the approach toward parallelism, and its attainment by Simiæ and Man, in terms of the struggle for existence, we gain a new insight into the profound significance of the lateral and of the forward-looking kinds of vision. The greater the self-motility and the fighting ability, the greater the approach of the visual axes to parallelism, the large and small Felidæ being nearest that of the Simiæ and Man. The difficulty in attaining parallelism is of course due to

*See Johnson, *The Mammalian Eye*.

the necessity of great modifications, not only in the bones of the face, but even in those of the skull, the transplacing of the orbits, etc. The more divergent the axes, the more gregarious, the more cowardly the animal. The common hare has 85° axes. What a vast and astonishing influence, therefore, has this factor had in the entire evolution of the fit, the exclusion of the unfit, in animal psychology, in morphology, indeed in every zoologic inquiry. It seems to have been entirely unsuspected.

4. In the same way the significance of the change in bodily posture from horizontality to verticality, effected in man, appears to have escaped proper recognition. It is man's most striking and differentiating characteristic, distinguishing him from the rest of the zoologic world. Has it been effected without a long and mighty struggle, without profound influence upon the victors, without exclusion of great numbers of the vanquished? Concealed by the slow process of ages we do not see the profound changes that occurred during the passage from horizontality to verticality of body. Think of placing a habitually horizontally-bodied animal on his hind legs only, his body erect, and one has a picture of what immense modifications of morphology, physiology, etc., must follow before the abused animal, if he lived a thousand years, would see and act with any approach to our "natural" seeing and acting. The Marsupialia and other relics of the halfway accomplishment of verticality exhibit most significant traces of the sorry ill successes. They may be described as the forty-five degree zoologic

failures. It would have been quite impossible to create visual organs equally well adapted to alternating horizontality and verticality. Hence the comparative failure and absence of numerous species even of the 45° types. The marsupial pouch is a necessary device to meet an exigency caused by the constriction of the pelvic outlet, which is due to the induced massiveness of the bony pelvis, and this a result of the body-weight resting upon these bones. The ovum soon after fertilization must be extruded at an early stage of gestation. In the kangaroo a special osseous support of the pouch is required—itsself a hint of the failed struggle of the intermediating unfit. The primary necessity which drove the Simians (and the Marsupials, also, for that matter) toward verticality was tree-climbing, for food-getting partly, but more to escape from enemies. But *pari passu*, one should not forget, came the required perfection of ocular function with parallelism of the ocular axes.

Out of many great changes consequent upon the assumption by Simians and Man of the upright posture I select several illustrating the difficulties and dangers encountered in fixing and making permanent the habit.*

*The mystery, seemingly so insoluble as to paralyze even the questioner, of the descent of the testes stands as the *bête noir* of medical science. I suggest that the amazingly strange makeshift of extruding the testes from the pelvic cavity is due to the collapsibility of the seminiferous tubules, epididymis, and especially of the vas deferens. Even the most habitual horizontality of posture of any animal is often and somewhat continuously changed for a partial uprightness. The weight of the superposed viscera would prevent the amazingly long journey of the spermatozoa through such thin collapsible tubules. In the subhuman Mammalia, therefore, the choked tubules would almost vitally endanger the propagation of the species and in the habitually upright Simian and Man it would

When we medical men do not know the etiology of a disease we take refuge in the solemnly-chanted words, *Diathesis, Neuropathic Diathesis, Neurasthenia, Hysteria*, etc. It may be said that in the human race spinal curvature is due to scoliotic diathesis! In a great American university, of about 1,200 Freshmen examined by experts, 80 percent had lateral spinal curvature. The proportion does not probably differ in any occidental country where school children are taught to write in the way advised by us. These 60,000,000 of United States folk have therefore not only the scoliotic "diathesis;" they have the scoliotic fact. The support of two-thirds of the body-weight by a single upright rouleau of ligatured bones, like that in the lumbar region, is an enormously expensive and hazardous proceeding. And yet accurate verticality might still be usually preserved if it were not for two ocular factors of mischief.* The morbid occidental writing-posture, due to ocular function and malfunction, together with some peculiar axes of astigmatism, are the active and sufficing causes of the great majority of cases of lateral spinal curvature. None may measure or calculate the part played by this astonishingly frequent scoliosis in the making of unfitness and in swelling the morbidity and mortality rates.

stop it. Cryptorchidism is accompanied by impotence. Every physician knows that the majority of all hernias are secondary to abnormalisms of the pelvic wall consequent upon the extrusion of the testes. Does not this great present-day vital expense to the community point to exclusions of other millions of the unfit in past ages?

*Helpful is the often overlooked fact that we spend one-third of our lives in bed—in the old horizontal position.

Another cause and result (both peculiarly interwoven, as always in such proceedings) of permanent verticality of the body-trunk, consists in the freeing of the front feet and legs from the function of walking and running, and making them into the manipulating tools without which *Simia* could never have become *Homo*. Immediately and synchronously in development came the evolution of sign-language and of articulate language itself. The word *digit*, and the Roman numerals representing the fingers held up, are the living remains and evidence of the early stages of this evolution of the front foot, paw, and hand, as a tool, and also of language-formation.

According to the admitted localization of the cerebral centers controlling muscular acts, the center for articulate speech is located upon one side of the brain, adjacent to the center for writing. Articulate speech is a single, not dual act, and hence its center could not in one person be bilateral. For the same reason neither could the writing center be double. Consequently the writing center and the speech center are close neighbors, located in one cerebral hemisphere, the left in the right-handed, the right in the left-handed. The expert task of writing is carried out by the right hand, and because what is written is language (even now writing is correlated by the school-boy with whisper and lip-motion), the contiguity of the centers in the *single* third frontal convolution is a necessity.

But there is now a new factor of great importance subtly introduced into the whole affair—that of a choice

of one hand or of the other for special tasks. For certain delicate and expert ones the dextral hand was chosen in about 94 percent of men and women, in the other 6 percent the sinistral. In either case the less expert hand is the helper of, or the holder for the other. Among animals there is no trace of such differentiation into right and left, because, of course, both front paws are equally and almost solely used for walking, etc. In the four-footed, horizontally-bodied animal, to the divergent right eye, looking to the right side, was allotted the task of seeing the world to the right, and particularly of placing the right front foot. To the similarly divergent left eye was given the left side to watch out for, and the left foot to place.

There was in mammalian beginnings little forward-looking, because parallelism of the visual axes was ages ahead, and could not be complete until the front legs and paws could be relieved of locomotion, and, with the upright posture, put to manipulative uses. Such an animal blinded in one eye, was thus quickly excluded as unfit. Ophthalmic disease and traumatism, of course, was more and more frequent as we go back to more remote and primitive conditions and habits.

With the vertical posture came right-handedness and left-handedness, came parallelism of the optic axes, came downlooking, overlooking, outlooking, and forward-looking, and the immense and sudden leap from monkey to man! Necessarily there were, besides those heretofore bespoken, a hundred vitally important modifications,

extensions, and perfectings of function and structure, which will long occupy the attention of future scientists. Of these we are here concerned with the ocular ones only; but what a vista is opened wherethrough we see the fittest to survive are often those that are only visually fit, and those excluded are they visually unadapted to the new conditions. Because, forget it not, the greatest perfection of visual function, from the day of assumed verticality, becomes the chief of all the agencies of progress. Ingenuity and intellect, speech, and writing, and printing, and language itself, could not follow without vision. The letters of the alphabet are conventionalized pictures, that is, ocular photographs; and memory, without which there can be no personality or individuality—memory and experience, are but a gallery of such photographs.

The latest complication and modification of visual function is a direct result of right-handedness; the eye-balls being placed 50 or 60 millimeters apart necessarily see two different pictures of an object. Therefore with delicate and dangerous tasks one eye must dominate. From the most primitive times the right foot or hand has been directed by the right eye, the left foot or hand by the left eye. With the evolution of right-handedness, upon the right eye has developed the duty of guiding in the more expert tasks. Hence the inevitable correlate of right-handedness is right-eyedness (dextrocularity), and of left-handedness it is left-eyedness. Indeed, I think that the precedent right-eyedness forces the choice of the right

hand as that for the more expert task, writing, sighting a gun, etc.* The infant chooses the right hand with which to reach out and grasp things because it is right-eyed. All army regulations, uniform since Xenophon, cannot make the left-handed soldier into a right-eyed one. The question of right-handedness and right-eyedness has been a mighty one in all history; all military life, drill, and maneuver, chivalry, single combat, the rule of the road, etc., etc., are commanded by it. All mechanics, tools, etc., must consider it well. Early railway locomotive building worked for years aimlessly at the unknown problem of right-eyedness, until it was found out, none knew why, that the engineer must stand or sit on the right side of the boiler. Railway wrecks still occur because in three double-track roads passing is to the left.

So advanced is the fixation of right-eyedness that, in the right-handed, the right eye will retain its function of right-eyedness despite a far greater degree of amblyopia than in the left, caused by late arising disease or ametropia. The left eye is far more subject to disease than the right, and is the one usually thrown out of use by ametropia, heterophoria, etc. There are, I suspect, a million Americans whose right eye is the only useful one. Were it not that the nose hides from the right eye a considerable part of the world to the left side, it is probable that the trend toward a single or cyclopean eye would be greater than it is at present. In the light of the localiza-

*I have had two left-handed patients who, compelled to shoot from the right shoulders, could take aim only when they depressed the right eye below the gun-level, and sighted with the left eye.

tion of the speech and writing center, and of the origin of right-handedness, the blunder of the Ambidexterity-monger is as maleficent as may be easily imagined. Every left-handed child taught by him to write (and that is all he tries or is able to do) with the dextral hand is thereby sadly and permanently injured.

5. If one is able to fix the visual axis of one eye, without movement or winking, upon an illuminated object, it soon fades out and disappears. The sensitive film, the retina, can hold the image but a second or two. Constant change of stimulus, of the scene or image, variation of light and shade, etc., are necessary to retinal resensitization. The fact points to the fifteen mechanisms I have described which bring about this change of place, of stimulus, and of regenerating shadow.* Observation shows that the lower Mammalia have eyes inferior to man in visual power. The widely opened pupils and lids prove this fact even if other evidences were not manifest. All birds, nocturnal prowlers, etc., must see upward and widely about, so that the shading mechanisms of the human retina are necessarily absent. That the number of rods in the adult are twice those of the infant suggests far greater complexity and responsiveness of the visual function of man as compared with that even of the higher animals. It also prophesies further progress. But the

*In birds the pecten, I suspect, unites in itself the most of these mechanisms, the large floating mass of waving vessels, with every movement of the bird's head, securing shadowing of one macula, while exposing that of the other eye. Birds, nocturnal prowlers, and those animals with habitually widely open lids have no astigmatism and thus have this compensation for their less sensitive retinas, etc.

shading mechanisms, in their totality, so necessary in man, are themselves demonstrations that in the ascent toward humanization and civilization the individuals superiorly equipped in these respects won in the struggle over those with less protected retinas.

Winking excepted, the chief of the human shadowing mechanisms is the position of the border of the upper lid at the upper edge of the pupil, followed by its instantaneous descent over the pupil in every act of winking. While hovering above the border, it is shading; when dropping over it, it is wholly blackening the retina. Its position is a consequence of the vertical position of the body and head, to shield the retina from the unused light above which would otherwise flood it with stimuli and thus drown photographic definition.

6. This inobviable necessity of the habitual placing the upper lid at the upper border of the cornea of vertical-bodied man brings with it a sad new evil, less pathogenic than would have been the excess of light, it is true, but still of enormous disastrous results to civilization. It is the chief cause of astigmatism. The cornea is warped by the pressure of the lid and one radius of its curvature is rendered greater than that at right angles to it. The retinal image of an astigmatic cornea does not therefore represent the true conditions and topography of the external world. The cerebrum is the organ of the inherited average of all past experience of approximately perfect visual images. The widely variant and morbid retinal stimulus passing through the 400,000 optic nerve fibers

to all parts of the cerebral switch-board, meets the infinitely complex but perfectly normal receiving and relaying mechanism. Resultant abnormalism of sensation, as to shape, color, accuracy of topography, etc., confuses the sensorium, and makes external action, based always upon vision, hazardous and ill-adapted for the act and for the individual. The individual must succumb, the race must persist. It is all a clear example of the truth that the body is really a part of the environment. Compounded with the other forms of ametropia as it usually is, we have the greatest of all environmental limitations to the progress of civilization. Almost every human eye has little or much astigmatism—there is not an optically or mathematically perfect pair of eyes in the world—and a small defect of shape may be more harmful and unfitting for the struggle for existence than the greater ones. The only miracle of ingenuity impossible for the ocular mechanic seems to be to make an eyeball true to within $1/200$ or $1/300$ of an inch. That fault of shape or measurement is constantly excluding millions from work in late social development and differentiation of function.

I beg you not to think or characterize this as the visionary imagining and exaggeration of specialism or of ill-balanced judgment. The reception of discoveries, medical or purely scientific, of the past, warns us that the greatest advances often spring from overlooked little things, and that prejudging is unsafe. Even as a military organization the German nation has far less

validity than is necessary, because of myopia. The greatest ocular handicap after astigmatism is the hyperopic eyeball, well adapted for old-world life-tasks, but most ill-fitted for the inordinately demanded near-work of civilization. Astigmatism is the chief cause of myopia and of cataract. Astigmatism is unavoidable, but all its effects may be easily avoided. Accomodational failure, or presbyopia, is also inevitable, but its evils may also be circumvented. Handed down as a tradition of the past ages, an absurd premature senility and a long-drawn-out useless old age have become so customary that one may hardly recognize that both are the needless results of unnecessary eyestrain.

The catalogue of ills and the exclusions of the unfit, because of ocular malfunction, are by no means ended. The president of the *British Medical Association* officially emphasizes the testimony of hundreds of other careful scientific medical men that vast numbers ("millions," he says) suffering with incapacitating headache, produced by eyestrain, have been relieved by spectacles. The Governor of Massachusetts goes much further in his inaugural address, and a famous surgeon of New York City says he avoids a great number of abdominal operations by sending patients to oculists who cure them with glasses. The great majority of the diseases of the world's sick and prematurely dying began in functional disease which is of course simply abnormal physiology. The larger number of aberrant physiologic processes are directly or indirectly due to slight imperfections of

measurements and shape of the eyeballs. Eventually they phase themselves into those mysteries of medicine called migraine, headache, sick headache, functional diseases of the digestive organs, lateral spinal curvature, kyphosis, nervous and mental diseases, such as insanity, much criminality, hysteria, neurasthenia, epilepsy, even suicide. There is an abundance and a growing mass of testimony that these diseases are very largely the consequences of morbid ocular function. Only the healthy are admitted to the future phylogeny: the diseased are unfit. It is easily possible to eradicate the diseases caused by eyestrain, and when the opportunity is realized, the number of medical men, colleges, and hospitals will be reduced by more than a half, the morbidity-rates and mortality-rates equally decreased, while the number of those endowing the future will be correspondingly increased.*

**Postscript.* In reference to the disadvantage of a high nasal bridge in man, it should be noted that oriental types have a higher wall between the eyes than the teutonic races who are now the chief carriers of an advancing civilization. The statues of the classic Greek and Roman sculptors make the line joining the point of the nose and the forehead a straight one. The Jew of to-day illustrates the same inheritance, or indeed that from a more remote ancestry in which the bridge bowed forward or outward. With us, instead, there is a marked depression between the eyes which will probably increase, and thus will be avoided some of the limitations of the trend toward monocularity.

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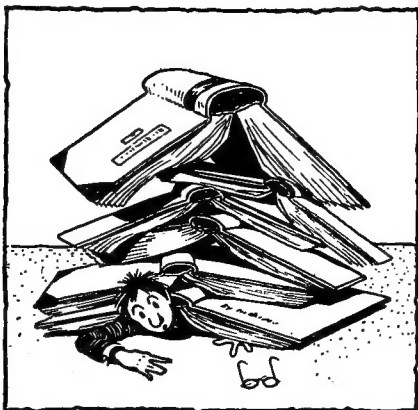
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DON'T TURN IT DOWN NOR OPEN IT TOO WIDE.

WHY SPOIL ITS LOOKS AND GIVE ITS BACK THE "BENDS"?
READ PROMPTLY AND RETURN, IT MAY HAVE OTHER FRIENDS.

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